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TRANSACTIONS

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

VOL. V.

FOR THE YEAR 1892.

PHILADELPHIA:
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1893.

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AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

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NOTE.

THE Association does not hold itself responsible for the views enunciated in the papers and discussions published in this volume.

WILLIAM WARREN POTTER, *Secretary*,
284 FRANKLIN STREET, BUFFALO.

[MINUTES and discussions reported stenographically by WILLIAM WHITFORD, M.D., Chicago, Ill.]

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CONSTITUTION AND BY-LAWS

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

CONSTITUTION.

I. The name of this Association shall be THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

II. Its objects shall be the cultivation and promotion of knowledge in whatever relates to Abdominal Surgery, Obstetrics, and Gynecology.

MEMBERS.

III. The members of this Association shall consist of Ordinary Fellows, Honorary Fellows, and Corresponding Fellows.

The Ordinary Fellows shall not exceed one hundred in number.

The Honorary Fellows shall not exceed ten American and twenty-five foreign.

Candidates shall be proposed to the Executive Council one month before the first day of meeting by two Fellows, and shall be balloted for at the annual meeting, a list of names having been sent to every Fellow with the notification of the meeting.

A two-thirds vote in the affirmative of all the members present shall be necessary to elect—fifteen Fellows at least being in attendance.

All candidates for active fellowship shall submit to the Executive Council, at least one month before the annual meeting, an original paper relating to Abdominal Surgery, Obstetrics, or Gynecology.

HONORARY FELLOWS.

IV. The power of nominating Honorary Fellows shall be vested in the Executive Council.

Their election shall take place in the same manner as that of Ordinary Fellows.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, but shall not be required to pay any fee.

CORRESPONDING FELLOWS.

V. The Corresponding Fellows shall be recommended by the Executive Council, and elected by the Association.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, and shall be entitled to a copy of the annual *Transactions*.

They shall pay an entrance fee of twenty-five dollars.

OFFICERS.

VI. The officers of this Association shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and five Executive Councillors.

The nomination of all officers shall be made in open session at the business meeting, and the election shall be by ballot.

The officers shall enter upon their duties immediately before the adjournment of the meeting at which they were elected, and shall hold office for one year.

Any vacancy occurring during the recess may be filled temporarily by the Executive Council.

ANNUAL MEETINGS.

VII. The time and place of holding the annual meeting shall be determined by the Association each time before adjournment.

It shall continue for three days, unless otherwise ordered by vote of the Association.

AMENDMENTS.

VIII. This Constitution may be amended by a two-thirds vote of all the Fellows present at the annual meeting, *provided* that notice of the proposed amendment has been given in writing at the annual meeting next preceding; and *provided further*, that it shall have been printed in the notification of the meeting at which the vote is to be taken.

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

BY-LAWS.

THE PRESIDING OFFICER.

I. The President, or in his absence one of the Vice-Presidents, shall preside at all meetings, and perform such other duties as ordinarily pertain to the Chair.

The presiding officer shall be *ex-officio* chairman of the Executive Council, but shall vote therein only in case of a tie.

SECRETARY.

II. The Secretary shall attend and keep a record of all meetings of the Association and of the Council, of which latter he shall be *ex-officio* clerk, and shall be entitled to vote therein.

He shall collect all moneys due from the members, and shall pay the same over to the Treasurer, taking his receipt therefor.

He shall supervise and conduct all correspondence of the Association; he shall superintend the publication of the *Transactions* under the direction of the Executive Council, and shall perform all the ordinary duties of his office.

He shall be the custodian of the seal, books, and records of the Association.

TREASURER.

III. The Treasurer shall receive all moneys from the Secretary, pay all bills, and render an account thereof at the annual meetings, when an Auditing Committee shall be appointed to examine his accounts and records.

EXECUTIVE COUNCIL.

IV. The Executive Council shall meet as often as the interests of the Association may require. The President, or any three members, may call a meeting, and a majority shall constitute a quorum.

It shall have the management of the affairs of the Association, subject to the action of the house at its annual meetings.

It shall have control of the publications of the Association, with full power to accept or reject papers or discussions.

It shall have control of the arrangements for the annual meetings, and shall determine the order of the reading of papers.

It shall constitute a court of inquiry for the investigation of all charges against members for offences involving law or honor; and it shall have the sole power of moving the expulsion of any Fellow.

ORDER OF BUSINESS.

V. The Order of Business at the annual meetings of the Association shall be as follows:

1. General meeting at 10 o'clock A.M.
   a. Reports of Committees on Scientific Questions.
   b. Reading of Papers and Discussions of the same.
2. The Business meeting shall be held at half-past eight o'clock P.M. on the second day of the session (unless otherwise ordered by vote), at which only the Fellows of the Association shall be present. The Secretary's Record shall then be read; the Treasurer's Accounts submitted; the Reports of Committees on other than scientific subjects offered; and all Miscellaneous Business transacted.

PAPERS.

VI. The titles of all papers to be read at any annual meeting shall be furnished to the Secretary *not later* than one month before the first day of the meeting.

No paper shall be read before the Association that has already been published, or that has been read before any other body.

Not more than thirty minutes shall be occupied in reading any paper before the Association.

All papers read before the Association shall become its sole property if accepted for publication; and the Executive Council may decline to publish any paper not handed to the Secretary *complete* before the final adjournment of the annual meeting.

QUORUM.

VII. The Fellows present shall constitute a quorum for all business, excepting the admission of new Fellows or acting upon amendments to the Constitution, when not less than fifteen Fellows must be present.

DECORUM.

VIII. No remarks reflecting upon the personal or professional character of any Fellow shall be in order at any meeting, except when introduced by the Executive Council.

FINANCE.

IX. Each Fellow on admission shall pay an initiation fee of twenty-five dollars, which shall include his dues for the first year.

Every Fellow shall pay in advance the sum of twenty dollars annually thereafter.

Any Fellow neglecting to pay his annual dues for two years shall forfeit his membership, upon vote of the Executive Council.

The Secretary shall receive annually a draft from the President drawn on the Treasurer for a sum, to be fixed at each annual meeting, for the services he shall have rendered the Association during the year.

A contingent fund of one hundred dollars shall be placed annually at the disposal of the Secretary for current expenses, to be disbursed by him, and for which he shall present proper vouchers.

ATTENDANCE.

X. Any Fellow who shall neither attend nor present a paper for three consecutive years may, unless he offer a satisfactory excuse, be dropped from fellowship upon vote of the Executive Council.

RULES.

XI. *Robert's Rules of Order* shall be accepted as a parliamentary guide in the deliberations of the Association.

AMENDMENTS.

XII. These By-laws may be amended by a two-thirds vote of the Fellows present at any meeting; *provided*, previous notice in writing has been given at the annual meeting next preceding the one at which the vote is to be taken.

OFFICERS FOR 1892–1893.

PRESIDENT.

LEWIS SAMUEL McMURTRY, Louisville.

VICE-PRESIDENTS.

EDWARD JOSEPH ILL, Newark.
HOWARD WILLIAMS LONGYEAR, Detroit.

SECRETARY.

WILLIAM WARREN POTTER, Buffalo.

TREASURER.

XAVIER OSWALD WERDER, Pittsburg.

EXECUTIVE COUNCIL.

CHARLES ALFRED LEE REED, Cincinnati.
GEORGE HENRY ROHÉ, Catonsville.
JAMES FREDERICK WILLIAM ROSS, Toronto.
WILLIAM WOTKYNS SEYMOUR, Troy.
DONNEL HUGHES, Philadelphia.

HONORARY FELLOWS.

1889.—Bantock, George Granville, M.D., F.R.C.S., Ed. Surgeon to the Samaritan Free Hospital. 12 Granville Place, Portman Square, W., London, England.

1889.—Barbour, A. H. F., M.A., B.S.C., M.D., F.R.C.P.E., F.R.S.E. Lecturer on Midwifery and Diseases of Women in the Edinburgh Medical School; Assistant Physician to the Royal Maternity Hospital; Assistant Physician for Diseases of Women to the Royal Infirmary; Physician to the Women's Dispensary; Fellow of the Edinburgh and London Obstetrical Societies, and of the British Gynecological Society; Corresponding Fellow of the Royal Academy of Medicine, Turin. 28 Melville Crescent, Edinburgh, Scotland.

1892.—Boislinière, L. Ch., A.B., M.D., LL.D. Emeritus Professor of Obstetrics in the St. Louis Medical College; Consulting Obstetrician to the St. Ann Lying-in Asylum and St. Louis Female Hospital; late President St. Louis Obstetrical and Gynecological Society, and late President St. Louis Medical Society; Member of St. Louis Academy of Science and of the Paris (France) Anthropological Society. 2303 Chestnut Street, St. Louis, Missouri.

1890.—Championnière, Just. Lucas-, M.D. 3 Avenue Montaigne, Paris, France.

1889.—Charpentier, Arthur Louis Alphonse, M.D. Fellow of the Faculty of Medicine of Paris; Member of the Academy of Medicine; and Chevalier of the Legion of Honor. 66 Rue de Miromesnil, Paris, France.

1888.—Cordes, August Elisée, M.D. Member of the Royal College of Physicians, London; Fellow of the Obstetrical Society of London, and of the British Gynecological Society; Corresponding National Member of the Obstetrical and Gynecological Society of Paris; Honorary Fellow of the Detroit Gynecological Society; late "Chirurgien-adjoint" of the Obstetrical and Gynecological Clinic at the Maternity of Geneva; Consulting Accoucheur of the Miséricorde

Hospital, etc.; Perpetual Member of the Société Obstétricale de France, Paris, France. 12 Rue Bellot, Geneva, Switzerland.

1890.—Corson, Hiram, M.D. Honorary Member of the Harrisburg (Pa.) Pathological Society; Associate Member of Philadelphia Obstetrical Society; Associate Fellow of the College of Physicians of Philadelphia, and Permanent Member (President, 1852) of the Pennsylvania Medical Society, and of the American Medical Association. Maple Hill, Plymouth Meeting, Pa.

1889.—Croom, J. Halliday, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E. Physician to and Clinical Lecturer on Diseases of Women, Royal Infirmary, Edinburgh; Physician to the Royal Maternity Hospital; Lecturer on Midwifery and the Diseases of Women at the School of Medicine; Consulting Physician for Diseases of Women, Western Dispensary. 25 Charlotte Square, Edinburgh, Scotland.

1889.—Dunlap, Alexander, A.M., M.D. Honorary Fellow of the American Gynecological Society; Member (Vice-President, 1878) of the American Medical Association. Springfield, O.

1888.—Edis, Arthur Wellesley, M.D. Lond., F.R.C.S., M.R.C.S. Senior Physician to the Chelsea Hospital for Women; late Obstetric Physician to the Middlesex Hospital, and Lecturer on Midwifery to the Medical School; late President of the British Gynecological Society, and Vice-President of the Obstetrical Society of London; Corresponding Fellow of the Gynecological Society of Boston, U. S.; Consulting Obstetric Physician to the City Provident Dispensary, and Hounslow College Hospital. 22 Wimpole Street, London, England.

1889.—Eklund, Abraham Fredrik, M.D. 3. A. Sibyllegatan, Stockholm, Sweden.

1891.—Fernandez, Juan Santos, M.D. Calle de la Reina, No. 92, Havana, Cuba.

1891.—Fisher, George Jackson, A.M., M.D. Vice-President (1864), President (1874), and Permanent Member of the Medical Society of the State of New York; Member of the American Medical Association; Corresponding Member of the Boston Gynecological Society; Member of the New York Academy of Sciences; Corresponding Member of the New York Historical Society; Vice-President of the American Academy of Medicine; Fellow of the New York Academy of Medicine; Fellow of the New York Medico-Legal Society; formerly Physician and Surgeon for the State's Prison for Males and Females at Sing Sing. 7 and 9 Ellis Place, Sing Sing, N. Y.

1889.—Freund, William Alexander, M.D. Professor and Director of the Clinic for Diseases of Women, in the Emperor William University. 2 Nikolaustaden, Strassburg, Germany.

1892.—Green, Traill, M.D., LL.D. Emeritus Professor of Chemistry in Lafayette College; Member of the American Medical Association; Member (President, 1867) of the Medical Society of the State of Pennsylvania; Fellow of the American Association for the Advancement of Science; Member of the American Philosophical Society; President of the Section of Therapeutics and Materia Medica, Ninth International Medical Congress; Consulting Physician to St. Luke's Hospital, Bethlehem; Physician to the Home for Friendless Children, Easton; Consulting Surgeon to Easton Hospital; Ex-President of the American Academy of Medicine. 222 Spring Garden St., Easton, Pa.

1889.—Keith, Thomas, M.D. 42 Charles Street, Berkeley Square, W., London, England.

1889.—Leopold, G., M.D. Professor in the Royal Clinic for Diseases of Women. 12 Seminar-Strasse, Dresden, Germany.

1890.—Martin, August, M.D. N. W. Alexander Ufer 1, Berlin, Germany.

1891.—Moses, Gratz Ashe, M.D. Emeritus Professor of Obstetrics and Gynecology in the Missouri Medical College; formerly in charge of the Woman's Department, St. Louis Hospital, and Clinical Lecturer in Gynecology, St. Louis Medical College; Physician to Augusta Hospital. 3941 West Bell Place, St. Louis, Mo.

1889.—Nicolaysen, Julius, M.D. Professor of Surgery in the University of Norway. Christiania, Norway.

1891.—Pietranera, E., M.D. Professor of Obstetrics in the Medical Department of the National University. Cordova, Argentine Republic, S. A.

1891.—Rodriguez, Juan M., M.D. Professor of Clinical Obstetrics in the Medical School of the University of Mexico. Mexico.

1889.—Sänger, Max, M.D. Professor of Obstetrics and Gynecology, University of Leipzig; late President of the Leipzig Obstetrical Society; Honorary Member of the Obstetrical Societies of

Philadelphia and Chicago; Honorary Member of the Belgian Gynecological Society, Brussels; Honorary Member of the Gynecological Society, Kiew; Corresponding Member of the Medical Society of Christiania, Norway. 16 Lindenstrasse, Leipzig, Germany.

1890.—Savage, Thomas, M.D., F.R.C.S. Eng. Surgeon to the Birmingham Hospital for Women. 33 Newhall Street, Birmingham, England.

1889.—Schultze, Bernhard Sigmund, M.D. Professor of Gynecology; Director of the Lying-in Institute, and of the Gynecological Clinic. 2 Sellierstrasse, Jena, Germany.

1888.—Smith, J. Greig, M.A., C.M., M.B., F.R.S.E. Surgeon to the Bristol Royal Infirmary; Lecturer on Surgery, Bristol Medical School; late Examiner in Surgery, University of Aberdeen, Scotland. 16 Victoria Square, Clifton, Bristol, England.

1888.—Tait, Lawson, M.D., LL.D., F.R.C.S.E. Surgeon to the Birmingham and Midland Hospital for Women; Consulting Surgeon to the West Bromwich, the Southampton, and the Nottingham Hospitals for Women; Professor of Gynecology and Member of the Council in Queen's College; President of Mason's Science College; Ex-President of the British Gynecological Society; President of the Birmingham Medical Institute; Ex-President of the Birmingham and Midland Counties Branch of the British Medical Association; President of the Worcestershire and Herefordshire Branch of the British Medical Association, and of the Midland Medical Society. 7 The Crescent, Birmingham, England.

1888.—Williams, John, M.D., F.R.C.P. 63 Brook Street, Grosvenor Square, W., London, England.

1889.—v. Winckel, F., M.D. Professor of Gynecology and Director of the Royal Hospital for Women; Member of the Supreme Council, and of the Faculty of Medicine in the University of Munich. 16a Sonnenstrasse, Munich, Germany.

Total, twenty-nine Honorary Fellows.

CORRESPONDING FELLOWS.

1891.—Griffin, Herbert Spohn, B.A., M.D. Surgeon to Hamilton City Hospital; Examiner in Obstetrics, University of Toronto. 157 Main Street, Hamilton, Ontario, Canada.

1891.—Machell, Henry Thomas, M.D., L.R.C.P. Ed. Lecturer on Obstetrics, Woman's Medical College; Surgeon to St. John's Hospital for Women; Physician to Victoria Hospital for Sick Children, and to Hillcrest Convalescent Home. 95 Bellevue Avenue, Toronto, Ontario, Canada.

Total, two Corresponding Fellows.

ORDINARY FELLOWS.

* Resigned. † Deceased.

Founder.—*Allen, Henry Bigelow, M.D. 1892.

1890.—Asdale, William J., M.D. Professor of Diseases of Women, Western Pennsylvania Medical College, Medical Department University of Western Pennsylvania. 2107 Penn Avenue, Pittsburg, Pa.

1892.—Ashton, William Easterly, M.D. Professor of Gynecology in the Medico-Chirurgical College; Gynecologist to the Medico-Chirurgical Hospital, and to the Philadelphia Hospital. 2011 Walnut Street, Philadelphia, Pa.

Founder.—Baker, Washington H., M.D. Senior Obstetrician to the Maternity Hospital; Physician to the German Hospital. 1610 Summer Street, Philadelphia, Pa.

Founder.—Banta, Rollin Ledrue, M.D. Consulting Obstetrician to the Sisters of Charity and Woman's Hospitals; President of the Buffalo Obstetrical Society, 1887–'88. *Vice-President*, 1890. *Executive Council*, 1891. 358 South Division Street, Buffalo, N. Y.

1889.—Barrow, David, M.D. 196 East High Street, Lexington, Kentucky.

Founder.—*Beckwith, Frank E., M.D. New Haven, Conn. 1892.

1890.—Bernardy, Eugene Prosper, M.D. 221 South Seventeenth Street, Philadelphia, Pa.

1892.—Blume, Frederick, M.D. Obstetrician to the Roselia Maternity Hospital; Consulting Gynecologist to the Mercy Hospital; Physician to the Pittsburg Free Dispensary; President of the Pittsburg Obstetrical Society. 118 Liberty Street, Allegheny, Pa.

1890.—Bond, Young Hance, M.D. Professor of Gynecology, Marion-Sims College of Medicine; Consulting Gynecologist to the St. Louis City and to the St. Louis Female Hospitals. 914 North Grand Avenue, St. Louis, Mo.

Founder.—Boyd, James Peter, A.M., M.D. Professor of Obstetrics, Gynecology, and Diseases of Children in the Albany Medical College; Gynecologist to the Albany Hospital; Consulting Obstetric Surgeon to St. Peter's Hospital; Fellow of the British Gynecological Society. 152 Washington Avenue, Albany, N. Y.

1889.—Branham, Joseph H., M.D. Demonstrator of Anatomy, College of Physicians and Surgeons; Visiting Surgeon to Bayview Hospital. 538 North Arlington Avenue, Baltimore, M.D.

1889.—†Burns, Bernard, M.D. Allegheny, Pa. 1892.

1891.—Cameron, Irving Heward, M.B. Professor of Clinical Surgery, University of Toronto; Surgeon to the Toronto General Hospital, to the Hospital for Sick Children, and the St. John's Hospital for Diseases of Women. 307 Sherborne Street, Toronto, Ont., Canada.

Founder.—Carstens, J. Henry, M.D. Professor of Obstetrics and Clinical Gynecology, Detroit College of Medicine; Gynecologist to Harper Hospital; Attending Physician to the Woman's Hospital; Obstetrician to the House of Providence; President of the Detroit Gynecological Society, 1892. *Vice-President*, 1888–'89. 21 Macomb Street, Detroit, Michigan.

Founder.—Carson, Norman Bruce, M.D. Surgeon to the St. Louis Mullanphy Hospital; Surgeon to the Augusta Free Hospital; Surgeon to St. Vincent's Insane Hospital; Consulting Surgeon to the City Hospital; Adjunct Professor of Surgery, St. Louis Medical College. 209 North Jefferson Avenue, St. Louis, Mo.

Founder.—Clarke, Augustus Peck, A.M., M.D. President of the Gynecological Society of Boston, 1892; Vice-President of the Pan-American Medical Congress, 1893; Member of the Massachusetts Medical Society; Fellow of the American Academy of Medicine; Member of the American Public Health Association; Member of the American Medical Association; Consulting Physician to the Middlesex Hospital and Dispensary. 693 Main Street, Cambridge, Mass.

1890.—†Coles, Walter, M.D. St. Louis, Mo. 1892.

1889.—Conklin, William Judkins, A.M., M.D. Visiting Surgeon to St. Elizabeth's Hospital; President of the Medical Society of the State of Ohio, 1891. 17 East First Street, Dayton, Ohio.

1892.—Cordier, Albert Hawes, M.D. First Vice-President of the Kansas State Medical Society, 1892. Chairman of the Surgical Section of the Kansas State Medical Society, 1891; Corresponding

Member of the Philadelphia Obstetrical Society. 1024 Walnut Street, Kansas City, Mo.

Founder.—Cushing, Clinton, M.D. Professor of Gynecology in Cooper Medical College; Consulting Surgeon to the French Hospital. *Executive Council*, 1888–'91. 636 Sutter Street, San Francisco, Cal.

1892.—Cushing, Ernest Watson, A.B., M.D. Surgeon of the Woman's Charity Club Hospital; Editor of the "Annals of Gynecology and Pediatry." 168 Newbury Street, Boston, Mass.

1889.—Davis, William Elias B., M.D. Secretary of the Southern Surgical and Gynecological Association, 1888–'93; formerly Surgeon to the Birmingham Hospital of United Charities; President of the Tri-State Medical Society of Alabama, Georgia, and Tennessee, 1892; Secretary of the Surgical Section of the American Medical Association, 1891; Honorary Member of the Medical Society of the State of New York. 1806 Third Avenue, Birmingham, Ala.

1889.—Dean, George R., A.B., M.D. 6 South Church Street, Spartanburg, S. C.

1892.—Dewees, William B., M.A., M.D. Vice-President of the Pan-American Medical Congress of 1893 for Kansas; Fellow of the American Academy of Medicine; Member of the American Public Health Association; Member of the American Medical Association; Member of the Western Association of Obstetricians and Gynecologists; Member of the Kansas State Medical Society. N. W. corner Santa Fé and Prescott Avenues, Salina, Kan.

1892.—Dorsett, Walter B., M.D. Professor of the Diseases of Women and Clinical Gynecology in the St. Louis College of Physicians and Surgeons; President of the St. Louis Medical Society, 1892. 3323 Lucas Avenue, St. Louis, Mo.

1889.—Douglas, Richard, M.D. Professor of Diseases of Women and Clinical Gynecology in the Medical Departments of the University of Nashville and Vanderbilt University; President of the Tri-State Medical Society of Alabama, Georgia, and Tennessee, 1893; Fellow of the British Gynecological Society; Member of the Southern Surgical and Gynecological Association. 110 Spruce Street, Nashville, Tenn.

1892.—Duff, John Milton, A.M., M.D., Ph.D. Chairman of the Section of Obstetrics and Diseases of Women in the American Medical Association, 1893; Professor of Obstetrics in the Western Pennsylvania Medical College; Surgeon and Gynecologist to the Pitts-

burg South Side Hospital; Fellow of the American Academy of Medicine; President of the Pittsburg Obstetrical Society, 1891. 2006 Carson Street, Pittsburg, Pa.

1892.—Dunning, Lehman Herbert, M.D. Professor of Diseases of Women in the Medical College of Indiana; Consulting Gynecologist to the Indianapolis City Hospital and Dispensary. 249 North Alabama Street, Indianapolis, Ind.

Founder.—*Eliot, Llewellyn, M.D. Washington, D. C. 1892.

1890.—Fenger, Christian, M.D. Professor of the Principles of Surgery and Clinical Surgery in the College of Physicians and Surgeons. 269 La Salle Avenue, Chicago, Ill.

1890.—Frederick, Carlton C., B.S., M.D. Adjunct Professor of Obstetrics in the Medical Department of Niagara University; Obstetrician and Gynecologist to the Buffalo Woman's Hospital; Obstetrician to the Widows' and Infants' Asylum. 64 Richmond Avenue, Buffalo, N. Y.

1889.—*Gardner, William Sisson. Baltimore, Md. 1891.

1891.—Gibbons, Henry, Jr., A.M., M.D. Dean and Professor of Obstetrics and Diseases of Women and Children in Cooper Medical College; Consulting Physician to the French and the Children's Hospitals. 920 Polk Street, San Francisco, Cal.

Founder.—Glasgow, Frank A., A.B., M.D. Professor of Clinical Gynecology in the St. Louis Medical College; Physician and Pathologist to the Martha Parsons Free Hospital for Children; In charge of the Female Medical and the Gynecological Departments of the St. Louis Mullanphy Hospital; Consultant to the St. Louis (city) Female Hospital. The Ericsson, 2608 Locust Street, St. Louis, Mo.

1892.—Haggard, William David, M.D. Professor of Gynecology and Diseases of Children in the Medical Department of the University of Tennessee; Consulting Gynecologist to City Hospital; Gynecologist to St. Margaret's Hospital; Chairman of Section on Diseases of Children, American Medical Association, 1886; Fellow (President, 1888) of the Southern Surgical and Gynecological Association; President of the Nashville Academy of Medicine and Surgery. 312 North High Street, Nashville, Tenn.

1889.—Hall, Rufus Bartlett, M.D. Didactic and Clinical Lecturer on Gynecology in the Miami Medical College; Surgeon in

charge of the Abdominal Department of the Presbyterian Hospital. *Vice-President*, 1891. 154 West Eighth Street, Cincinnati, Ohio.

1891.—Haynes, John Randolph, M.D., Ph.D. Associate Professor of Gynecology in the Medical College of the University of Southern California. 929 South Main Street, Los Angeles, Cal.

Founder.—Hill, Hampton Eugene, M.D. *Executive Council*, 1890. *Vice-President*, 1892. Saco, Maine.

1889.—Hoffman, Joseph, B.A., M.D. 126 West Diamond Street, Philadelphia, Pa.

1891.—Holmes, Josus Billington Sanders, M.D. President of the Georgia State Medical Association, 1890; Member of the Southern Surgical and Gynecological Association; Member American Medical Association. Rome, Ga.

1891.—Howitt, Henry, M.D., M.R.C.S. Eng. Surgeon to the Guelph General and St. Joseph's Hospitals, Guelph; Member of the British and Ontario Medical Associations; Medical Health Officer for the City of Guelph. 235 Woolwich Street, Guelph, Ont., Canada.

1890.—Hughes, Donnel, M.D. *Executive Council*, 1893. 4005 Chestnut Street, Philadelphia, Pa.

1892.—Hulbert, George F., M.D. Professor of Principles and Practice of Medicine and Clinical Gynecology in the Marion-Sims Medical College; Consulting Physician and Surgeon to the Missouri Pacific Railway Hospital; Consulting Gynecologist to the St. Louis City and Female Hospitals; Secretary of the St. Louis Obstetrical and Gynecological Society. 3026 Pine Street, St. Louis, Mo.

1892.—Hypes, Benjamin Murray, A.M., M.D. Professor of Obstetrics in the Marion-Sims Medical College. 2005 Victor Street, St. Louis, Mo.

Founder.—Ill, Edward Joseph, M.D. Surgeon to the Woman's Hospital; Gynecologist to St. Barnabas' and Consulting Gynecologist to the German Hospitals. *Vice-President*, 1893. 1002 Broad Street, Newark, N. J.

Founder.—Jarvis, George Cyprian, M.D. Visiting Surgeon to the Hartford Hospital. 98 High Street, Hartford, Conn.

1892.—Jelks, James T., M.D. President of the Arkansas Medical Society, 1892; Chairman of the Section of Surgery in the American Medical Association, 1893; Professor of Gynecology in Barnes Medical College, St. Louis, Mo. 178 Central Avenue, Hot Springs, Ark.

1891.—Johnston, George Ben., M.D. Late Professor of Anatomy Medical College of Virginia; Physician to St. Sophia's Home for the Aged; Consulting Surgeon to the Richmond Eye, Ear, and Throat Infirmary: Vice-President of the Southern Surgical and Gynecological Association, 1892. 407 East Grace Street, Richmond, Va.

1892.—King, Willis Percival, M.D. Assistant Chief Surgeon to the Missouri Pacific Railway Hospital; Vice-President of the American Medical Association, 1892. 810 Harrison Street, Kansas City, Mo.

1890.—Krug, Florian, M.D. Gynecologist to the German Hospital; Fellow of the Academy of Medicine; Member of the Obstetrical Society; Member of the Medical Society of the County of New York; Member of the German Medical Society. 13 East Forty-first Street, New York, N. Y.

1890.—Longyear, Howard Williams, M.D. Gynecologist to Harper Hospital; Physician to the Woman's Hospital; President of the Detroit Gynecological Society, 1889; Chairman of the Section on Obstetrics and Gynecology of the Michigan State Medical Society, 1892. *Vice-President*, 1893. 698 Woodward Avenue, Detroit, Michigan.

Founder.—Lothrop, Thomas, M.D. Professor of Obstetrics, Niagara University; Director of the Woman's Hospital; Physician to St. Francis's Hospital; Consulting Physician to the Hospital of the Sisters of Charity and to the Providence Retreat for the Insane. 153 Delaware Avenue, Buffalo, N. Y.

1891.—Macdonald, Willis Goss, M.D. Lecturer on Operative Surgery and Instructor in Abdominal Surgery in Albany Medical College; Surgeon to the Out-door Department of the Albany Hospital. 27 Eagle Street, Albany, N. Y.

Founder.—McArdle, Thomas Eugene, A.M., M.D. Professor of Minor Surgery in the National Medical College; Assistant Surgeon in the Children's Hospital. 819 Seventeenth Street, Washington, D. C.

1891.—McCann, James, M.D. Professor of Surgery in Western Pennsylvania Medical College; Surgeon to the Western Pennsylvania Hospital. 928 Penn Avenue, Pittsburg, Pa.

Founder.—McMurtry, Lewis Samuel, A.M., M.D. Professor of Gynecology in the Hospital College of Medicine; Gynecologist to Sts. Mary and Elizabeth Hospital; Fellow of the Edinburgh Obstetrical Society; Fellow of the British Gynecological Society; Corresponding

Member of the Obstetrical Society of Philadelphia and of the Gynecological Society of Boston. *Executive Council*, 1891–'92. *President*, 1893. 231 West Chestnut Street, Louisville, Ky.

Founder.—Manton, Walter Porter, M.D. Visiting Physician to the Woman's Hospital; Consulting Gynecologist to the Michigan State Asylum for the Insane; Fellow of the British Gynecological Society; Fellow of the Royal Microscopical Society. 83 Lafayette Avenue, Detroit, Michigan.

Founder.—Marcy, Henry Orlando, A.M., M.D., LL.D. Surgeon to the Hospital for Women, Cambridge; President American Medical Association, 1892; President of the Section of Gynecology, Ninth International Medical Congress; late President of the American Academy of Medicine; Member of the British Medical Association; Member of the Massachusetts Medical Society; Member of the Boston Gynecological Society; Corresponding Member of the Medico-Chirurgical Society of Bologna, Italy. 180 Commonwealth Avenue, Boston, Massachusetts.

Founder.—Maxwell, Thomas Jefferson, M.D. Professor of Obstetrics and Gynecology, College of Physicians and Surgeons; Surgeon to St. Joseph's Hospital. 727 North Ninth Street, Keokuk, Iowa.

Founder.—Miller, Aaron Benjamin, M.D. Professor of Gynecology, Medical Department of Syracuse University; Gynecologist to St. Joseph's Hospital, House of The Good Shepherd and Dispensary. 326 Montgomery Street, Syracuse, N. Y.

1892.—Miller, Alfred Beckett, M.D. Member of the American Medical Association; Member of the National Association of Railway Surgeons; President of the Missouri State Medical Association, 1892; Late Lecturer on Gynecology in the Medical Department of the State University of Missouri. Macon, Mo.

Founder.—Montgomery, Edward Emmett, B.S., M.D. Professor of Clinical Gynecology in the Jefferson Medical College; Gynecologist to Jefferson Medical College Hospital and St. Joseph's Hospital; Obstetrician to the Philadelphia Hospital. *Vice-President*, 1888–'89; *President*, 1890. 1818 Arch Street, Philadelphia, Pa.

1890.—Morris, Robert Tuttle, A.M., M.D. Instructor in Surgery at the New York Post-Graduate Medical School and Hospital. *Vice-President*, 1892. 133 West Thirty-fourth Street, New York, N.Y.

Founder.—*Moses, Gratz Ashe, M.D. (See Honorary Fellows.)

Founder.—Myers, William Herschel, M.D. Surgeon to St. Joseph Hospital; Member of the American and the British Medical Associations; Member of the Pathological Society of London; Member of the International Congress of Gynecologists and Obstetricians; Member of Chicago Medical Society. *Vice-President*, 1890. 157 West Wayne Street, Fort Wayne, Indiana.

1891.—Nevitt, R. Barrington, B.A., M.D. Lecturer on Clinical Surgery and Dean of the Woman's Medical College; Surgeon to Toronto General Hospital; Surgeon to the Hospital for Sick Children; Surgeon to St. Michael's Hospital. 176 Jarvis Street, Toronto, Ont., Canada.

Founder.—*Opie, Thomas, M.D. Baltimore, Md. 1891.

1889.—Paine, John Fannin Young, M.D. Professor of Obstetrics and Gynecology in the School of Medicine, University of Texas; Obstetrician and Gynecologist to the John Sealy Hospital; President of the Texas State Medical Association, 1888; Vice-President of the Section of Public and International Hygiene in the Ninth International Medical Congress; Member of the American Medical Association, and of the Southern Surgical and Gynecological Association. S. E. cor. Broadway and Twenty-sixth Street, Galveston, Texas.

1890.—Pearson, William Libbey, M.D. 713 Union Street, Schenectady, N. Y.

1891.—Peck, George S., M.D. Consulting Surgeon to the City Hospital. 26 West Federal Street, Youngstown, O.

1891.—Pond, Edmund M., M.D. 20 South Main Street, Rutland, Vermont.

1891.—Porter, William, Jr., M.D. Attending Physician to the Hartford Orphan Asylum; Member of the Hartford Medical Society, of the Hartford County Medical Society, and of the Connecticut State Medical Society. 47 Forest Street, Hartford, Conn.

Founder.—Potter, William Warren, M.D. Consulting Gynecologist to the Woman's Hospital; Examiner in Obstetrics, New York State Medical Examining and Licensing Board; Chairman of the Section of Obstetrics and Diseases of Women, American Medical Association, 1890; President of the Buffalo Obstetrical Society, 1884–'86; Member of the Southern Surgical and Gynecological Association; President of the Medical Society of the State of New York, 1891;

Chairman of the Section of Gynecology and Abdominal Surgery, Pan-American Medical Congress, 1893. *Secretary*, 1888–'93. 284 Franklin Street, Buffalo, N. Y.

1891.—Praeger, E. Arnold, M.D. Surgeon to the Female Hospital; Principal Surgeon to the New Vancouver Coal and Mining Company; Fellow of the Obstetrical Society of London, England; Senator for Nanaimo in the British Columbia University. Front Street, Nanaimo, B. C.

Founder.—Price, Joseph, M.D. Physician-in-charge of the Preston Retreat; Physician-in-charge of the Obstetrical and Gynecological Department of the Philadelphia Dispensary; Member of the Southern Surgical and Gynecological Association; Honorary Fellow of the Medical Society of the State of New York; Honorary Fellow of the South Carolina Medical Society; Honorary Fellow of the Virginia Medical Society; Member of the British Gynecological Association, and of the Edinburgh Obstetrical Society. 500 North Twentieth Street, Philadelphia, Pa.

1890.—*Price, Mordecai, M.D. Philadelphia, Pa. 1892.

Founder.—Reed, Charles Alfred Lee, A.M., M.D. Professor of Gynecology and Abdominal Surgery in the Cincinnati College of Medicine and Surgery, and in the Woman's Medical College of Cincinnati; Surgeon to the Cincinnati Free Surgical Hospital for Women; Secretary-General of the Pan-American Medical Congress, 1893. *Executive Council*, 1890–'93. 311 Elm Street, Cincinnati, Ohio.

1890.—Ricketts, Edwin, M.D. Professor of Abdominal Surgery and Gynecology in the Cincinnati Polyclinic; Member of the American and British Medical Associations; Member of the Southern Surgical and Gynecological Association. 137 Broadway, Cincinnati, Ohio.

1890.—Robinson, William Lovaille, M.D. Ex-President of the Danville Medical Society; Member of the Virginia State Medical Examining Board; Member of the Southern Surgical and Gynecological Association. 733 Main Street, Danville, Va.

1889.—Rohé, George Henry, M.D. Professor of Materia Medica, Hygiene, and Mental Diseases in the College of Physicians and Surgeons; Superintendent of the Maryland Hospital for the Insane. *Vice-President*, 1891. *Executive Council*, 1892–'93. Catonsville, Md.

1892.—Rosenwasser, Marcus, M.D. Dean and Professor of the Diseases of Women and Abdominal Surgery in the University of Wooster; Gynecologist to the Cleveland Hospital for Women and

Children; Consulting Gynecologist to the City Hospital; Member of the American Medical, and Ohio State Medical Associations. 722 Woodland Avenue, Cleveland, Ohio.

1890.—Ross, James Frederick William, M.D., L.R.C.P. (Eng.). Gynecologist to the Toronto General Hospital; Surgeon to the Woman's Hospital; Lecturer in Gynecology at the Woman's Medical College. *Executive Council*, 1892–'93. 481 Sherborne Street, Toronto, Ont., Canada.

1890.—Sexton, John Chase, A.M., M.D. Rushville, Indiana.

1889.—Seymour, William Wotkyns, A.B., M.D. Professor of Gynecology in the University of Vermont; formerly House Surgeon of the Boston City Hospital; Member of the American Medical Association; Fellow of the New York State Medical Association; Member of the British Medical Association. *Executive Council*, 1892-'93. 105 Third Street, Troy, N. Y.

Founder.—Shepherd, George Rubens, M.D. 667 Asylum Avenue, Hartford, Conn.

1890.—*Shoemaker, George Erety, M.D. 1891.

1891.—Smith, Charles N., M.D. Editor *American Gynecological Journal.* 1921 Franklin Avenue, Toledo, Ohio.

Founder.—Stanton, Byron, M.D. Professor of Diseases of Women and Children in the Miami Medical College. *Executive Council*, 1888–'89. 157 Dayton Street, Cincinnati, Ohio.

Founder.—Stewart, William Shaw, A.M., M.D. Professor (Emeritus) of Obstetrics and Clinical Gynecology, Medico-Chirurgical College; Gynecologist to the Medico-Chirurgical Hospital. 1801 Arch Street, Philadelphia, Pa.

1890.—Stone, Isaac Scott, M.D. Professor of Clinical Gynecology in the University of Georgetown; Gynecologist to the Columbia Hospital for Women; Fellow of the British Gynecological Society; Member of the Southern Surgical and Gynecological Association; Member of the Medical Society of the District of Columbia. 1504 H Street, N. W., Washington, D. C.

Founder.—Storrs, Melancthon, A.M., M.D. Attending Surgeon to the Hartford Hospital; President Connecticut State Medical Society. *Executive Council*, 1888–'89. 91 Ann Street, Hartford, Conn.

Founder.—Taylor, William Henry, M.D., Ph.D. Dean and

Professor of Obstetrics, Miami Medical College; Obstetrician to the Cincinnati Hospital; Consulting Obstetrician, Christ's Hospital. *President*, 1888–'89. 329 West Seventh Street, Cincinnati, Ohio.

1890.—Thomas, George Gillett, M.D. Ex-President Medical Society of the State of North Carolina. Wilmington, N. C.

Founder.—Townsend, Franklin, A.M., M.D. Emeritus Professor of Physiology, Albany Medical College; Obstetrician to the Albany City Hospital; Visiting Obstetrician and Gynecologist to St. Peter's Hospital; Visiting Physician to the Albany Protestant Orphan Asylum. 2 Park Place, Albany, N. Y.

Founder.—Vander Veer, Albert A.M., M.D., Ph.D. Professor of Didactic, Clinical, and Abdominal Surgery, Albany Medical College; Attending Surgeon to the Albany Hospital; Consulting Surgeon to St. Peter's Hospital; Fellow of the American Surgical Association; Fellow of the British Gynecological Society; Corresponding Member of the Boston Gynecological Society. *Executive Council*, 1889–'91. *President*, 1892. 28 Eagle Street, Albany, N. Y.

1891.—Walker, Edwin, M.D., Ph.D. Gynecologist to the Evansville City Hospital; President of the Indiana State Medical Society, 1892; Member of the American Medical Association, and of the Mississippi Valley Medical Association; Member of the Southern Surgical and Gynecological Association. 427 Upper Third Street, Evansville, Indiana.

1890.—Ward, Milo Buel, A.M., M.D. Professor of Gynecology in the Kansas Medical College; Secretary of the Section on Obstetrics and Diseases of Women in the American Medical Association, 1893; President of the Western Association of Obstetricians and Gynecologists, 1892. 323 Potwin Place, Topeka, Kansas.

Founder.—Wathen, William Hutson, M.D. Dean and Professor of Abdominal Surgery and Gynecology in the Kentucky School of Medicine; Chairman of the Section of Obstetrics and Gynecology of the American Medical Association, 1889; President of the Kentucky State Medical Society, 1887; Fellow of the American Gynecological Society, and of the Southern Surgical and Gynecological Association; Consulting Gynecologist to the Louisville City Hospital. The Fonda, 628 Fourth Avenue, Louisville, Kentucky.

1889.—Wenning, William Henry, A.M., M.D. Professor of Obstetrics in the Woman's Medical College; Gynecologist to St. Mary's Hospital. 126 Laurel Street, Cincinnati, Ohio.

Founder.—Werder, Xavier Oswald, M.D. Gynecologist to the Mercy Hospital and Pittsburg Free Dispensary, Obstetrician to the Roselia Maternity Hospital; Consulting Gynecologist to St. Francis's Hospital; Consulting Surgeon to the South Side Hospital. *Treasurer*, 1888–'93. 111 Steuben Street, W. E., Pittsburg, Pa.

1889.—*West, Hamilton Atchinson, M.D. Galveston, Texas, 1891.

Founder.—Wright, Adam Henry, B.A., M.D., Univ. Toronto, M.R.C.S. (Eng.). Professor of Obstetrics in the University of Toronto; Obstetrician and Gynecologist to the Toronto General Hospital and Burnside Lying-in Hospital. *President*, 1891. 30 Gerrard Street, East, Toronto, Ont., Canada.

Total, ninety-two Ordinary Fellows.

MINUTES OF THE PROCEEDINGS

AT THE

FIFTH ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS

HELD IN THE

ORDINARY OF THE LINDELL HOTEL,

St. Louis, Missouri,

SEPTEMBER 20, 21, AND 22, 1892.

FIFTH ANNUAL MEETING.

St. Louis, Mo., Tuesday, Wednesday, and Thursday, September 20, 21, and 22, 1892.

The following-named Fellows were present:

BOISLINIÈRE, L. CH.	St. Louis.
BOND, YOUNG H.	St. Louis.
CARSTENS, J. HENRY	Detroit.
CARSON, NORMAN B.	St. Louis.
CONKLIN, WILLIAM J.	Dayton.
CORDIER, A. H.	Kansas City.
DORSETT, WALTER B.	St. Louis.
DUFF, JOHN M.	Pittsburg.
DUNNING, L. H.	Indianapolis.
GLASGOW, FRANK A.	St. Louis.
HALL, RUFUS B.	Cincinnati.
HOFFMAN, JOSEPH	Philadelphia.
HOLMES, J. B. S.	Rome.
HUGHES, DONNEL	Philadelphia.
HULBERT, GEORGE F.	St. Louis.
HYPES, BENJAMIN M.	St. Louis.
ILL, EDWARD J.	Newark.
JELKS, JAMES T.	Hot Springs.
KING, WILLIS P.	Kansas City.
LONGYEAR, HOWARD W.	Detroit.
MANTON, WALTER P.	Detroit.
MAXWELL, THOMAS J.	Keokuk.
McMURTRY, LEWIS S.	Louisville.
MILLER, AARON B.	Syracuse.
MORRIS, ROBERT T.	New York City.
MYERS, WILLIAM H.	Ft. Wayne.
POTTER, WILLIAM W.	Buffalo.
REED, CHARLES A. L.	Cincinnati.
RICKETTS, EDWIN	Cincinnati.
ROHÉ, GEORGE H.	Catonsville.
ROSENWASSER, M.	Cleveland.
ROSS, JAMES F. W.	Toronto.

SEXTON, JOHN C.	Rushville.
TAYLOR, WILLIAM H.	Cincinnati.
VANDER VEER, A.	Albany.
WALKER, EDWIN	Evansville.

Total, thirty-six Fellows.

Letters or messages of regret were received from the following-named Fellows:

Honorary—August E. Cordes, Hiram Corson, Fr. Eklund, Juan Santos Fernandez, George Jackson Fisher, Traill Green, August Martin, Julius Nicolaysen, and Max Sänger.

Ordinary—William J. Asdale, David Barrow, Eugene P. Bernardy, Clinton Cushing, William E. B. Davis, Henry Gibbons, Jr., Hampton E. Hill, George C. Jarvis, Florian Krug, Thomas Lothrop, Willis G. Macdonald, James McCann, Thomas E. McArdle, Henry O. Marcy, Edward E. Montgomery, George S. Peck, E. Arnold Praeger, Joseph Price, William W. Seymour, George R. Shepherd, Byron Stanton, William S. Stewart, Melancthon Storrs, Milo B. Ward, William H. Wenning, Xavier O. Werder, and Adam H. Wright.

First Day—*Tuesday, September 20th.*

Morning Session.—The meeting was called to order at 10 o'clock by the President, Dr. A. Vander Veer, of Albany, who delivered the following introductory address:

Mr. Chairman and Gentlemen of the Committee of Arrangements: We trust that the means adopted in our past meetings have been such as to command the respect of the profession of St. Louis, and that when this present session shall have drawn to its close, we may leave such an impression as will be for the benefit of the noble work in which we are mutually interested. As an Association we have had much to encourage us; the volumes of our *Transactions* have been well received by older societies, and have been criticised in a manner by the medical journals and reviewers so pleasantly and in such a liberal spirit, as to give us feelings of joy and encouragement to continue in the line we are pursuing.

In looking over the subjects found in our *Transactions* we are gratified in seeing the amount of good material contained therein, and that has assisted in elucidating and making clear many problems that loom up before the specialist in these branches of our profession. It is proper that we should consider the ways and means of making our Association more cosmopolitan, giving a greater range of membership, and reach-

ing more particularly through our work the general practitioner. It seems to me that we should, as an Association, endeavor to touch clearly and concisely the specialties that lie within our domain, in order that the general practitioner may be better assisted in making his early, necessary diagnosis in cases that are apt to come to him first, and after that for a special course of treatment. Such progress in our work as is being made from year to year must be brought home to the physician in general practice.

Were this the time and place, it would give me great pleasure to speak of the advances made in the treatment of many conditions relating to obstetrics, gynecology, and abdominal surgery by our Fellows; papers that are recognized and incorporated in our text-books, and are now the common property of our great profession in this broad land. I cannot forbear, however, to speak of a few subjects, such as ectopic pregnancy, treatment of pyosalpinx, fibroid tumors, the use of the traction forceps, and sacral resection. We have demonstrated in these and many other papers the division and classification of abdominal and pelvic surgery in a way that has commanded the utmost respect of all men working in these departments.

Our Association has proven again that "nothing succeeds like success." We have made our record thus far in a creditable manner, and we have but to wait for a clearer and greater recognition.

The one great element of success in meetings such as are represented by this Association, is the liberality and fairness of discussion extended to all. Our Fellows are not only disputants on the subjects in which we are mutually interested, but gentlemen in their bearing one toward another.

At this time I desire to thank the Fellows of the Association for the honor they have conferred in electing me to preside at this meeting. Positions of trust have been given me in many medical societies, some with much larger membership than ours, but in no way have I felt to appreciate the honor more keenly, and I would acknowledge it now as impressing upon me a degree of pleasure, the memory of which I am sure will ever remain with me while life's work continues.

In the management of this meeting I must claim your assistance. Noble men have occupied the position I now occupy—men of great parliamentary knowledge, men strong in ability to discuss subjects that were presented. I can only give indorsement to the methods adopted by my predecessors, and encourage, as much as possible, free discussion and reports of cases, knowing that our work is ever done in a spirit of fairness, imputing no wrong to any one individual.

I also desire to render my gratitude to the Secretary for his excel-

lent labor in the publication of the programme for this present meeting. He has brought to us much good material, material worthy of our most careful consideration, and I am sure a proper carrying out of the programme arranged will redound to the credit of Fellows and officers of this Association.

We have to mourn the death of two of our Fellows during the past year: Dr. B. Burns, of Allegheny, Pa., and Dr. Walter Coles, of St. Louis.

Dr. Burns died January 24th, at Mercy Hospital, Pittsburg. Few men of his age had made so excellent a reputation. His friend and fellow-townsman, Dr. Werder, has prepared a most excellent memorial, which I suggest be spread upon the records of the Association.

Dr. Walter Coles died August 8th. He was a man of splendid reputation in his profession. He had done much hard work in his specialty, and was recognized as a competent, experienced obstetrician and gynecologist. Our Secretary has the memorial of the St. Louis Medical Society of August 10th in reference to his death, and I would also suggest that this be spread upon our minutes.

I desire at this time to call your attention to the physical suffering through which one of our Honorary Fellows has been forced to pass during the past year, namely, Dr. Alexander Dunlap, of Springfield, Ohio, probably one of the oldest, if not *the* oldest, abdominal surgeon living. A few years ago he began to develop all the marked symptoms of enlarged prostate, so serious at his time of life, and later symptoms of stone in the bladder. The latter condition grew so much worse that about two months since he was operated upon by Dr. Dandridge, of Cincinnati, by litholapaxy, and a fair-sized stone removed. From this operation he has made a good recovery, and is very much improved in his general health. It is much to be regretted that he is not able to be with us to-day. His courage and powers of endurance of physical suffering are well illustrated in that while suffering very much and obliged to pass a catheter frequently, he yet continued to operate, doing a section at a time when, in the midst of his operation, he was obliged to desist and make use of the catheter. Few men have accomplished what he has in the pioneer work of abdominal surgery. It would seem to me wise that in some manner we express to him our sympathy in his suffering.

Again thanking the Committee of Arrangements for their encouragement, and also you who are present this opening day of our meeting for your prompt attendance, we will proceed to the carrying out of the programme, which promises so wide and interesting a field of practical investigation and knowledge.

Upon recommendation of the Executive Council the following-named physicians were invited, by vote of the Association, to participate in the proceedings as members by invitation:

Drs. Henry H. Mudd, I. N. Love, Henry Schwarz, Rufus G. Wells, A. H. Ohmann-Dumesnil, J. H. McIntyre, Bransford Lewis, H. Wheeler Bond, George W. Broome, Leon Straus, A. S. Barnes, William W. Beggs, A. V. L. Brokaw, Sarah F. Wells, William Porter, Jules F. Valle, A. S. Barnes, Jr., W. W. Todd, L. H. Laidley, N. M. Leavitt, William M. McPheeters, Mary H. McLean, Thomas H. Bates, H. C. Dalton, W. B. Outten, H. W. Loeb, E. C. Gehrung, Frank R. Fry, W. Hutson Ford, and L. Crusius of St. Louis; Edmund B. Montgomery, Quincy, Ill.; W. E. Guthrie, Bloomington, Ill.; Kneeland P. Jones, Kansas City; C. B. Burr, Pontiac, Mich; M. J. Short, Rollo, Mo.; H. K. Leake, Dallas, Texas; and Arch. Dixon, President Kentucky State Medical Society, Henderson, Ky., and the President and members of the St. Louis Obstetrical and Gynecological Society.

Dr. Charles A. L. Reed, of Cincinnati, offered the following:

"*Resolved*, That the American Association of Obstetricians and Gynecologists hereby extends its cordial congratulations to its venerable Honorary Fellow, Dr. Alexander Dunlap, over his recovery from his recent severe illness, and indulges the hope that he may be spared to many years of usefulness and happiness."

Unanimously carried.

Papers were then read as follows:

1. "Posture in Relation to Obstetrics and Gynecology," by William W. Potter, M.D., of Buffalo.

Discussed by Drs. Ross, Reed, Taylor, Morris, Hoffman, Hall, Ricketts, Glasgow, Carstens, Boislinière, Vander Veer, and in closing by Dr. Potter.

2. "Present Status of Obstetrics, with a Report of My Own Work," by Joseph Price, M.D., of Philadelphia. (Dr. Price's paper was read by Dr. Joseph Hoffman in the absence of the author.)

On motion, the discussion of this paper was made a special order as the first business for Wednesday morning, provided the author shall have arrived.

3. "The Essential Question of Drainage in Pelvic Surgery," by L. S. McMurtry, M.D., of Louisville.

Discussed by Drs. Ricketts, Hoffman, Glasgow, Reed, Hall, King, Myers, Dunning, Manton, Cordier, Carstens, Rosenwasser, Mudd (by invitation), Vander Veer, and in closing by Dr. McMurtry.

Afternoon Session, 3 *o'clock.*

The President in the Chair.

4. "The Technique of Vaginal Hysterectomy," by J. Henry Carstens, M.D., of Detroit.

Discussed by Drs. Cordier, Hoffman, and in closing by Dr. Carstens.

5. "Tetanus Following Minor Gynecological Operations," by Edwin Walker, M.D., of Evansville.

Discussed by Drs. Sexton, Vander Veer, Hoffman, and in closing by Dr. Walker.

6. "Unreported Cases," by W. H. Myers, M.D., of Fort Wayne.

Discussed by Drs. Hoffman, Cordier, Longyear, Maxwell, Carstens, Conklin, Duff, Vander Veer, and in closing by Dr. Myers.

Evening Session, 8 *o'clock.*

The President in the Chair.

This session was a special one, and devoted to the presentation of specimens, reports of cases, and discussions.

Cases were reported and pathological specimens exhibited by Drs. Hoffman, Longyear, Ill, Rickets, Ross, Vander Veer, McMurtry, Hall, Maxwell, and Carstens.

Adjourned until Wednesday morning.

SECOND DAY—*Wednesday, September 21st.*

Morning Session, 10 *o'clock.*—The President in the Chair.

Dr. Price failing to arrive, the special order was passed.

7. "The Pelvic Symphyses in Pregnancy and Parturition," by W. J. Conklin, M.D., of Dayton.

Discussed by Drs. Taylor and Myers.

8. "Tumors of the Abdominal Wall," by Edward J. Ill, M.D., of Newark.

Discussed by Drs. Morris, McMurtry, Reed, Carstens, Manton, Cordier, Vander Veer, and in closing by Dr. Ill.

9. "Two Unusual Cases of Fibroids; Removal by Abdominal Section," by A. B. Miller, M.D., of Syracuse.

Discussed by Drs. McMurtry, Carstens, Ricketts, Hall, Hoffman, Reed, Cordier, Myers, McIntyre (by invitation), and in closing by Dr. Miller.

Vice-President Morris took the Chair.

10. President's Address: "Some Considerations in Reference to Uterine Hemorrhage—Puerperal and Non-Puerperal," by A. Vander Veer, M.D., of Albany.

The Secretary stated that though it was not customary in this Association to discuss the President's Address, even if it dealt with scientific questions, in this instance the President particularly asked that the members of the Association discuss it freely.

The President's Address was then discussed by Drs. Carstens, Taylor, Longyear, Duff, Manton, Hoffman, and in closing by the President.

Afternoon Session, 3 o'clock.

The President in the Chair.

11. "Clinical Report of Gall-bladder Operations," by Rufus B. Hall, M.D., of Cincinnati.

Discussed by Drs. Ricketts, Myers, and in closing by Dr. Hall.

12. "Is Evolution Trying to Do Away with the Clitoris?" by Robert T. Morris, of New York.

Discussed by Drs. Vander Veer, Walker, Hoffman, Myers, Manton, Rohé, Cordier, and in closing by Dr. Morris.

13. "The Surgical Treatment of Cancer of the Uterus," by Charles A. L. Reed, M.D., of Cincinnati.

Discussed by Drs. Vander Veer, Ricketts, Hoffman, Dunning, and in closing by Dr. Reed.

Adjourned until Thursday morning.

THIRD DAY—*Thursday, September 22d.*

Morning Session, 10 o'clock.—The President in the Chair.

The Secretary read a letter to the Association from Dr. Joseph Price, regretting his inability to be present.

14. "Experiences in Abdominal Surgery on the Insane," by W. P. Manton, M.D., of Detroit.

15. "The Relation of Pelvic Disease and Psychical Disturbances in Women," by George H. Rohé, M.D., of Catonsville.

These two papers, 14 and 15, were discussed together by Drs. C. B. Burr, of Pontiac, Mich. (by invitation), Carstens, Ricketts, King, Ross, Sexton, Reed, Walker, Hall, Vander Veer, and in closing by Dr. Rohé.

Afternoon Session, 3 o'clock.

The President in the Chair.

16. "Pus in the Pelvis and Abdomen; Its Diagnosis and Treatment," by Joseph Hoffman, M.D., of Philadelphia.

Discussed by Drs. Myers, Carstens, Vander Veer, Potter, H. C. Dalton (by invitation), King, Sexton, Hall, and in closing by Dr. Hoffman.

17. "Extra-uterine Pregnancy," by Edwin Ricketts, M.D., of Cincinnati.

18. "Four Cases of Ectopic Pregnancy and the Lessons they Teach," by R. B. Hall, M.D., of Cincinnati.

19. "Ectopic Gestation; Its Varieties, Symptoms, and Treatment During its Several Stages," by J. F. W. Ross, M.D., of Toronto.

On motion, in the discussion of these three papers, 17, 18, and 19, each speaker was limited to three minutes, owing to the lateness of the session, and the desire on the part of many of the members to catch the early trains.

The papers were discussed by Drs. Hoffman and I. N. Love (by invitation).

The following named papers were read by titles, and ordered to be printed in the *Transactions:*

1. "Nephrotomy and Nephrectomy Successfully Performed on One Patient for Multiple Abscess," by George S. Peck, M.D., of Youngstown.

2. "Advantages of Version in a Certain Class of Obstetric Cases," by A. P. Clarke, M.D., of Cambridge.

3. "Sacral Resection; Its Place in Pelvic Surgery," by E. E. Montgomery, M.D., of Philadelphia.

4. "Plastic Surgery of the Pelvic Structures," by H. O. Marcy, M.D., of Boston.

5. "Abdominal Section for Diagnosis," by Clinton Cushing, M.D., of San Francisco.

6. "Corneal Opacity in Fetal Eyes," by Juan Santos Fernandez, M.D., Havana, Cuba.

7. "Ventral Hernia following Laparatomy," by L. H. Dunning, M.D., of Indianapolis.

8. "The Treatment of Abortion," by John Milton Duff, M.D., of Pittsburg.

9. "Pelvic Cellulitis and its Relation to Surgery," by Marcus Rosenwasser, M.D., of Cleveland.

10. "On the Management of the Third Stage of Labor," by Frederick Blume, M.D., of Allegheny, Pa.

11. "Memorial of Dr. Bernard Burns," by X. O. Werder, M.D., of Pittsburg.

12. "Memorial of Dr. Walter Coles," by Gratz Ashe Moses, M.D., of St. Louis.

Dr. C. A. L. Reed offered the following:

"*Resolved*, That the American Association of Obstetricians and Gynecologists extends its thanks for the cordial and hospitable reception its members have received at the hands of the St. Louis profession.

"*Resolved*, That the thanks of the Association are hereby tendered to Messrs. Howe & Chassaign, proprietors of the Lindell Hotel, for the free use of the Ordinary for the meetings, and for other courtesies extended to the Association during the last three days."

Unanimously carried.

The following-named newly elected officers were then installed:

President, L. S. McMurtry, M.D., of Louisville. *Vice-Presidents*, Edward J. Ill, M.D., of Newark, and H. W. Longyear, M.D., of Detroit. *Secretary*, William Warren Potter, M.D., of Buffalo. *Treasurer*, X. O. Werder, M.D., of Pittsburg. *Executive Council*, Charles A. L. Reed, M.D., of Cincinnati; George H. Rohé, M.D., of Catonsville; James F. W. Ross, M.D., of Toronto; William W. Seymour, M.D., of Troy, and Donnel Hughes, M.D., of Philadelphia.

President Vander Veer then adddressed the Association as follows:

GENTLEMEN OF THE ASSOCIATION: The time draws near when this meeting is to close. As your presiding officer, I desire to express to you personally and collectively the gratitude I feel toward you for the kind attention you have all given me, and for all you have contributed to the interest of this meeting. I can only express to you my pride in the number of papers that have been presented and the excellent discussions that have followed; I can only express to you my feelings of comfort and joy and contentment as we near the time of separation at the good feeling that has prevailed throughout these sessions. (Applause.) And now, as I separate myself from the Chair of government, retiring again to the ranks as one of the humbler members of this Association, I feel that the robes of office have fallen upon one far better for the government of the Association during the coming year, and I take pleasure at this time in introducing to you the President-elect, Dr. L. S. McMurtry, of Louisville. (Applause.)

Dr. McMurtry, on rising, was warmly received, and spoke as follows:

FELLOWS OF THE ASSOCIATION: I assure you that I would be untrue to myself if I did not say that I appreciate keenly the very high

honor that has been conferred upon me in calling me to this position. On the other hand, I have never in my life so completely felt my shortcomings as I do at the present time. The Chair of this Association has been occupied by Taylor, by Montgomery, by Wright, and by Vander Veer—men who are far abler than I am to conduct its proceedings. I have felt it an honor to be a humble worker upon the floor of this Association. I believe that this Association is doing a work that is unequalled by any other medical organization. It has brought men out, it has brought their work to the front, and I know that it has moulded professional opinion and modified the practice of obstetrics, gynecology, and pelvic surgery in America. I have felt that as a member on the floor of this Association I was where I belonged, and that I was doing my duty. I have been improved by it; I have been made a better practitioner by it, and I am under obligation to the Association for this distinguished honor. I feel it is undeserved; I feel that I should be working in its ranks, but if I can serve the Association in any capacity it will indeed be a privilege, and I shall make an earnest effort to deserve your approbation.

As to my duties as your presiding officer, they are made easy. The executive officer of this Association is its accomplished Secretary. (Applause.) If I can by my aid and influence develop the work of this Association as my distinguished predecessor has done I can aspire to nothing else. I believe the work of the Association at this meeting has not been surpassed. I know it is customary for presiding officers and members of Associations to indulge in adulatory remarks upon occasions like this. I am not speaking in any commonplace way, and I know you will bear me out in saying that the work of the Association during this meeting has been signal; it has been exceptional and unusual, and when our volume of *Transactions* shall have appeared I feel a pride in saying that we will lead the van in pelvic surgery in this country.

Gentlemen, the hour approaches when the trains will carry away from this city, where we have been so cordially received, where we have done such profitable work, our Fellows, and I think I voice the sentiments of every Fellow of the Association when I say that each will carry home the best wishes of every other Fellow here, and we will look forward to the time when we will meet again and resume our labors. In the meantime I pledge you that it shall be a special purpose with me, by my devotion to the work which you have placed in my hands, to show you how much I appreciate the distinguished honor you have conferred upon me. (Applause.)

The President.—I notice that Dr. William H. Taylor, of Cincinnati, our honored first president, is in the audience, and I am sure the Association will be pleased to hear from him. (Applause.)

Dr. Taylor arose in his place and said:

Mr. President: I feel it is hardly appropriate for me to say anything at this late hour; but, as I said at the dinner last night, I have been greatly impressed with the growth of this Association, and, after listening to all of the discussions today, that impression has been intensified. When we began, only a few years ago, it was with a great deal of fear and trembling as to the reception the profession might accord to us. The feelings I have at present are those of great pleasure. The remarks made by the distinguished gentleman of this city (Dr. Love) in his discussion of ectopic pregnancy are the type of just what this Association ought to seek to do. Every man here has his own convictions as to *how to operate*. It should be our desire to educate the general practitioner to that point where he can see the importance of the special work of this Association.

It may perhaps be pardonable or proper for me to say to those who are not so familiar with my recent history, that there have been most sad and serious reasons to keep me from participating in the work of the Association. My old associates know this, and it is not necessary to make any apology whatever for my absence from the Association. Dark clouds have come in my life, and for the time being at least have obscured all aspirations I have. I came to this meeting with a feeling I owe to my colleagues to manifest my interest again in the Association. I assure you it has only been a pleasure for me to be with you, and if I am spared to resume my ordinary duties in the profession I shall do what work I can to further the success of this Association in the future. (Applause.)

The time and place of the next meeting were referred to the Executive Council for its decision.

The President then declared the fifth annual meeting adjourned *sine die*.

WILLIAM WARREN POTTER,
Secretary.

Note.—At a meeting of the Executive Council, held immediately after the Association adjourned, it was unanimously voted to hold the sixth annual meeting at Detroit, Mich., on Thursday, Friday, and Saturday, June 1, 2, and 3, 1893.

Executive Sessions.

Tuesday, September 20, 1892.

The President in the Chair.

The Secretary, in behalf of the Executive Council, presented a list containing the names of candidates for Fellowship. The Association then elected by ballot the following-named candidates:

Honorary Fellow—Dr. L. Ch. Boislinière, St. Louis.

Ordinary Fellows—Dr. W. E. Ashton, Philadelphia; Dr. F. Blume, Allegheny; Dr. A. H. Cordier, Kansas City; Dr. E. W. Cushing, Boston; Dr. William B. Dewees, Salina, Kansas; Dr. L. H. Dunning, Indianapolis; Dr. John M. Duff, Pittsburg; Dr. W. B. Dorsett, St. Louis; Dr. William D. Haggard, Nashville; Dr. George F. Hulbert, St. Louis; Dr. B. M. Hypes, St. Louis; Dr. James T. Jelks, Hot Springs; Dr. Willis P. King, Kansas City; Dr. A. B. Miller, Macon City, Mo.; Dr. M. Rosenwasser, Cleveland.

In the absence of the Treasurer, Dr. X. O. Werder, of Pittsburg, the Secretary presented his report, showing a balance on hand of $154.01. The Secretary also reported the accounts and vouchers relative to the contingent expenses for the fiscal year.

On motion, the Chair appointed Drs. Hughes and Sexton a Committee to audit the accounts of the Secretary and the Treasurer.

The Auditing Committee subsequently reported that the accounts and vouchers of the Secretary and Treasurer had been examined and were found correct.

The Executive Session then adjourned until Wednesday evening at half-past seven o'clock.

Wednesday, September 21, 1892.

The Executive Session was called to order by the President at 7.30 o'clock.

The Secretary stated that the first business in order was the following amendment to the Constitution, offered last year by Dr. Montgomery: Ordered, that the second paragraph of Article III. be stricken out. The paragraph reads as follows: "The Ordinary Fellows shall not exceed 100 in number." The Executive Council, through the Secretary, recommended that the amendment, owing to the absence of Dr. Montgomery, remain upon the table for another year. Carried.

Dr. J. H. Carstens, of Detroit, moved that the question of membership be referred back to the Executive Council, to report at the next

meeting, with instructions to consider the whole question of membership, and bring in a report on that subject. Seconded by Dr. Ross, and carried.

The Secretary stated that it was customary for the Association each year to pass a resolution permitting the members to publish their papers in one respectable medical journal. The proviso that goes with that privilege is, that credit shall be given to the Association for the paper, namely, that it was read at the meeting of the Association, and that following the name of the author he shall state "Fellow of the American Association of Obstetricians and Gynecologists." This had been neglected by some in previous years, he presumed from oversight. If such a resolution prevails, he hoped due attention would be paid to that feature.

On motion, seconded by Dr. Carstens, and carried, it was ordered that authors be granted the privilege, subject to the restrictions, as indicated by the Secretary.

The following-named Fellows were elected by ballot as officers for the ensuing year:

President, L. S. McMurtry, M.D., of Louisville. *Vice-Presidents*, Edward J. Ill, M.D., of Newark, and H. W. Longyear, M.D., of Detroit. *Secretary*, William Warren Potter, M.D., of Buffalo. *Treasurer*, X. O. Werder, M.D., of Pittsburg. *Executive Council*, Charles A. L. Reed, of Cincinnati; George H. Rohé, M.D., of Catonsville; James F. W. Ross, M.D., of Toronto; William W. Seymour, M.D., of Troy, and Donnel Hughes, M.D., of Philadelphia.

Invitations were received from Detroit and Baltimore as places for the next meeting.

On motion, the time and place of the next meeting were referred to the Executive Council for its decision.

The Executive Session was then adjourned.

WILLIAM WARREN POTTER,
Secretary.

PAPERS

READ AT THE

FIFTH ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS,

HELD IN THE

ORDINARY OF THE LINDELL HOTEL,

St. Louis, Missouri,

SEPTEMBER 20, 21, AND 22 1892.

THE PRESIDENT'S ANNUAL ADDRESS.

SOME CONSIDERATIONS IN REFERENCE TO UTERINE HEMORRHAGE, PUERPERAL AND NON-PUERPERAL.

By A. VANDER VEER, M.D.,
ALBANY.

Taking our profession as a whole, we are apt to look upon the surgical side as embodying that which at times calls for the greatest amount of heroic courage. Occasionally, in the days of my obstetrical practice, I let my thoughts run in channels of comparison, and when brought face to face with an unexpected or unlooked-for case of post-partum hemorrhage, have wondered if it was possible to place a practitioner of medicine in a position where greater reach of thought was required and where more prompt employment of means and remedies was necessary.

We enter the home, in many cases, where all is bright; there is hopeful expectancy and a cheerful outlook. Suddenly, perhaps at the moment of almost triumphant success, comes that train of conditions that startles all. The life of the wife, the young mother, is in the balance, and the household shudders at the possible entrance of death. Of all the points of anxiety that now present themselves, none equal that of hemorrhage.

The obstetrician, with his surgical training, remembers well his teaching, and reminds himself that "the first rule in surgery is not to let your patient bleed to death." He examines with rapidity the condition of his patient; he recalls rapidly in his mind what are the possible complications and what it is that now threatens her life. To have his mind act clearly and quickly, to apply promptly that form of relief which the case requires and bring back joy and thank-

fulness where all has been grief and fear, stamps the true physician.

We, as Fellows of this Association, are the consultants in many such cases. We can look back when, as younger men, we were being tried in the crucible of practical experience. Now, as we work onward and upward, it should be our aim to give those in general practice, who are guided and aided by the specialist, all assistance possible. With this object in view, I have selected this subject for my address. Not that my effort may bring forth much that may be of value, but that the discussion of the subject, covering, as it does, the lines of work followed out by both obstetrician and gynecologist, who constitute the Fellowship of this Association, may be such as will bring strength and comfort to him who, in the lonely hamlet or in the wealthy mansion, in that midnight hour when assistance seems so far away, may be aided in fighting alone and single-handed, but successfully, the battle that has been so unrelentingly waged against his patient. There can be no doubt but that the text-books of today are eliminating much that has been of little service in finding out the causes and suggesting the rational treatment of puerperal hemorrhage.

Gratitude is due, and is and should be rendered, to our modern writers who, ignoring the traditions of *this* book or the several editions of *that* work in hereditary transmission, have taken up the subject anew, and, as it were, given out new chapters on planes of reasoning regarding investigations and treatment that have brought about a renewal and lengthening of the life of motherhood. We have had from many sources within the past five years, and especially from our own Fellows, Price, Rohé, and others, the methods and ways of preparation of our patient for the lying-in room that have resulted in recoveries unknown heretofore. Yet when we consider deaths that are recorded or that occur before our first visit permits us to leave the sick- or lying-in room, have we not still something more to do in lessening the certificates of death from immediate and fatal hemorrhage?

I have witnessed death in many forms, but none so sad as that of puerperal hemorrhage. In the days of my obstetrical practice I was grateful in having escaped such an experience, but in consultation to see the last of a human life ebbing to an end is sad, sad indeed. If there be one line of thought and work I would urge

upon the general practitioner, or him who, in his circle of metropolitan or rural practice, is known as the obstetrician, it is this: a more clear and definite history of the case than is frequently secured previous to the day and hour of accouchement. I repeat, that too often the doctor enters the room of his puerperal patient knowing far too little of her previous history. In this direction, of teaching by precept, and following out of duty, there is need of great improvement. The public should be taught, the mature parents should impress more earnestly upon the expectant mother than is done, the necessity of her informing the family physician fully of her physical make-up, and, if there be any, her family peculiarities. No surgeon of today approaches an operation without fully learning all that pertains to that particular patient, especially if he is to bring his percentage of recoveries up to that point maintained by the best operators. Too often our fatal cases are the ones in which, from haste or from circumstances that apparently at the time could not be controlled, we find, when too late, that had we known certain conditions of our patient it would have been better for all concerned. I am satisfied that this is a field for greater study, from which obstetrical art will receive much benefit.

Consider for a moment conditions of heredity. That family, one of whose members is about to enter the lying-in room, is known to come from a family of bleeders. This the family physician should certainly take into consideration. In my early practice I attended Mrs. Q. in her first confinement. She had always flowed very freely during her menstrual period, and stated that this was characteristic of her mother and one or more of her sisters. There was nothing in her labor abnormal, except that she flowed very freely, and this was only controlled by a free use of ice, internally and externally, with ergot, and constant hand-pressure over the fundus of the uterus. Two years after, she died from hemorrhage from what I believed to be a ruptured tubal pregnancy. Nearly twenty years after, I attended her daughter, in an emergency, in a case of abortion brought on by a fall at the end of the sixth week of pregnancy, in which the hemorrhage was frightful and persistent, only controlled by a prompt cleaning out of the uterus.

These cases, I know, are but types of a class of conditions familiar to us all. The obstetrician of experience has well in mind all possible complications that may present to his patient as the

parturient hour begins. The length and condition of the cord is one of the factors that must be quickly considered in the sudden hemorrhage that at times presents, either in the slow or rapid delivery. The coiling of the cord about the body of the child so shortens it at times that too sudden separation of the placenta occurs, and the uterine sinuses are left wide open, though the uterus may be ever so willing and in proper condition to contract. These are the cases in which the large coagula and masses of blood are apt to form within the cavity of the uterus, and which must be removed at once. How necessary just here for the obstetrician to have a clean, aseptic hand! Is it any wonder that, in the past, septic conditions have arisen when former methods were adopted by the hand with "nails in mourning," no curetting, no stream of hot water even suggested? The short cord is too often overlooked, and the damage so quickly done not promptly recognized. It is plainly the duty of the attending physician to recognize this at once. There must be no waiting for the nurse to tell him that his patient is bleeding. The injury is done ere the child is born, and the necessary assistance must be rendered the uterus at once. It matters not whether the delivery has been a fairly strong and quick one, or a slow, tedious affair in which, at last, it has been thought best to apply the forceps. The short cord is apt to bring the placenta quickly into the vagina. This the careful, experienced obstetrician will recognize at once, and now is the time for action. Let me illustrate:

Mrs. B. K., ill in her first confinement; a good family history; always an active and energetic society girl, of a decidedly sanguine, nervous temperament. Her labor was natural, and at the end a few sharp pains brought the child through the external soft parts somewhat quickly. I realized at once that we had a short cord—it really only measured about nine and one-half inches—tied it quickly, passed babe to the nurse; but the hemorrhage that presented was frightful. The best of help was present in the room—her husband being a physician, as well as the brother, and both were there. I removed the placenta promptly, which was free in the vagina; emptied the uterus of clots; applied ice externally and internally; gave ergot; kneaded the fundus; used promptly the faradic current, applied by Dr. F. Townsend, who came quickly; raised the foot of the bed, lowered the head of the patient; saw rapidly coming on that dusky, leaden, bleached appearance of the face; felt the velvety condition of the skin on the

surface of the body, so noticeable in sudden loss of blood; no pulse to be observed in any of the external arteries; the abdominal artery only recognizable as constant pressure was kept applied to it; loss of consciousness immediate, and now a fearful convulsion due to anemia of the brain. What a startling change in so short a period of time! Hypodermics of brandy and aromatic spirits of ammonia were made use of. Dr. Townsend continued faithfully the use of the battery. I sent at once for my transfusion case; the brother of the patient, strong and willing, furnished the fresh blood, and, though very difficult for me to find the vein in her arm, I did succeed in transfusing a moderate amount of blood, and its beneficial effects were at once apparent. There was some evidence of returning consciousness. The lower limbs were bandaged, and gradually our patient came back to life and to permanent recovery. I am glad to report that this patient has since borne another child and all went well. In the latter case the cord was of normal length, and every precaution to prevent hemorrhage was employed.

Take this case as a study, and is it possible in any branch of surgery to have one more trying? Since its experience I have had some serious abdominal work to perform, yet seldom that which brought greater and keener anxiety for the time.

Traumatisms of the neck of the uterus, of the vagina, and of the external soft parts may bring on a bleeding that is in itself alarming at the time. Fortunate now is the patient if she have an attendant possessed of some surgical skill. Take, for instance, a case in which laceration of the cervix has occurred. The circular artery has been torn, lacerated, or ruptured; the uterus is empty, contracted, all is normal in that direction. Careful examination reveals the true source of the hemorrhage; and now the vessel must be tied, and at the same time, unless the patient is too greatly exhausted, immediate closure of the laceration, placing a glass drainage-tube in the cervix. Lacerations of the perineum, vagina, and external soft parts are often the source of serious hemorrhage, and to my mind should be repaired at once. The general practitioner has yet much to learn, and must exercise more promptness in the immediate repair of these lesions.

Varicose veins in and about the vulva are at times the source of serious hemorrhage at delivery of the child.

Permit me to report a case from my note-book:

Mrs. T., aged thirty-six years; in her third confinement, December, 1879. Others had been fairly normal, but she had suffered from the first from varicose veins of the lower extremities. This labor natural, but immediately after delivery of the child and placenta I was alarmed by the bleeding, which continued so long as to cause exhaustion and syncope. A careful, quick examination assured me that the uterus and all were normal. As should be done in all these cases, a careful examination of the placenta was made. No portion was torn, and the membranes gave that normal cone-like bag so pleasant to see. On examining the external parts, with a view of going still farther up the vagina and to the cervix, I was surprised to find venous blood flowing freely from large varicose veins on the left side of the vagina and from the internal labia. I made use of my thumb and finger for immediate pressure. Being much younger in practice, and patient's condition alarming, I sent for Dr. Lansing, who had previously attended her, and who responded quickly. But I had continued pressure for one-half hour, and in placing the patient in position for tying the vessel it was found the bleeding was controlled, and it did not return. Patient made a good recovery.

Arteries about the clitoris are sometimes torn and will require tying or the application of the clamp.

Fibroid tumors are sometimes a source of serious hemorrhage, and to my mind, if we have to deal with that condition called hour-glass contraction, we should be thoroughly on the lookout for this lesion. I have an impression that fibroids situated in the lower third of the uterus, especially interstitial, are the most frequent cause of this trouble, when such conditions really exist.

Late at night, January, 1873, I was requested to go twelve miles into the country to see Mrs. C., aged thirty-two, in her second confinement. The child was delivered, but her physicians were unable to remove the placenta, and I was sent for. I found her with the lower segment of the uterus empty, but the upper portion retained the placenta, which I did not have very much trouble in removing, finding, however, that she had a uterine fibroid the size and shape of a goose-egg. She recovered from her confinement, and two years afterward, in making an examination, no trace of the fibroid could be discovered. I have no doubt that in the process of involution that took place after the birth of her child the fibroid was absorbed.

Later, I was requested by Dr. Fowler, at 3 A.M., to see Mrs. H., whom he had just attended in confinement, and where the hemorrhage

had given him much anxiety, leaving, as he thought, large clots in the uterus and vagina. On thorough examination I found a fibroid the size of a child's head occupying the anterior lower portion of the uterus. The bleeding was soon controlled, and the patient made a good recovery. As stated in the former case, as involution went on the tumor was absorbed.

I am certain that syphilitic infection is more frequently the cause of hemorrhage than the profession has been led to believe. Take a case of abortion after abortion, and where by judicious treatment the patient finally goes on to full time. These cases must be carefully watched.

Mrs. B., aged thirty years, had had six abortions, ranging from four to eight months each, and all giving evidence of syphilitic trouble, but by the use of chlorate of potassium and iodides, alteratives and proper tonics, she was brought to full time. She had always flowed freely, and the family was told to send promptly whenever her sickness presented. They did so, but I happened to be out at the time. She was so anxious to have me attend her that they waited a few moments, but growing worse, another physician was sent for. Returning, I immediately responded to the call, but in the hour, the hemorrhage had been so terrific, she was dead.

Such a condition as that bed and room presented I shall never forget. It never seemed possible to me that the human body could have held so much blood. The body was as white and bleached as I have seen dead soldiers on the battlefield when dying from a clean-cut wound of the femoral or popliteal artery. The placenta presented as a large, fatty mass, and there apparently had been no attempt on the part of the uterus to contract.

In another like case, seen in the practice of Dr. Bailey, and where we had a chance to examine the uterus, the sinuses presented as great, open spaces, the bleeding being fearful.

Those who have read Dr. Oliver Wendell Holmes's charming paper on "The Selection of the Family Physician" can readily indorse all he has to say there. I would add one additional point: Let the young doctor, in the first confinement of his patient, and even after, examine well the appearance of the placenta. A tendency to a large placenta is a tendency to hemorrhage, and especially if there be evidence of an extra lobe. A small and possibly

adherent placenta from inflammatory changes is no more dangerous, though perhaps giving greater anxiety in its immediate removal. Of placenta previa, central or marginal, I can hardly speak. It is a subject within itself. I can only indorse much that has been written of late, and modern lines of treatment, prompt, energetic means, never forgetting the tampon-like effect of the head when it presents, and remembering that chloroform, with rapid dilatation and delivery, has saved the life of many a mother and child.

Again, let the physician who as a stranger is called to attend a new patient in perhaps her second, third, or fourth accouchement, learn all the points connected with her previous confinements.

I well remember, not many years ago, being called to see Mrs. M. in her second confinement, and in getting her history she said: "I nearly died from hemorrhage in my former sickness." I could get no history of hereditary or other conditions such as to give alarm, but was on the alert. All went naturally at the time of labor, yet in the delivery of the placenta a severe hemorrhage occurred, soon controlled by prompt measures near at hand, the want of which has sometimes cost the life of the patient.

A class of cases that have always commanded my admiration, yet at times sorrow, is that of a noble wife and mother who, patiently giving birth to six or more children, perhaps in somewhat rapid succession, at last, in a confinement, suddenly dies from hemorrhage. The family physician in these cases should never forget the possibilities of atony of the uterus or irregular uterine contractions; of the want of development of uterine tissue in an already overworked organ. That term, uterine inertia, too frequently means thin muscular walls—want of muscular growth. How indefinite an expression when already a pathological, fatty change is present! These patients should be protected in time, rest from conception should be enforced, later tonics, and by all means the use of a mild faradic current of electricity.

The fibroid tumor must not be overlooked as sometimes causing a thinning of the uterine walls. In these last two classes of cases I am certain that at times hemorrhage results from too earnest use of Credé's method, rupture, inversion and like complications, or irregular hour-glass contractions, so called. In these conditions organic diseases of the heart should never be lost sight of.

As surgeons we are fond of quoting:

> "The thoughtful surgeon, skilled our wounds to heal,
> Is more than millions to the common weal."

I would say a thousand times more emphatically, Give us the faithful, intelligent physician, skilled to save the lives of our loved wives and daughters.

Holowko[1] publishes an unusual case of hemorrhage:

"The patient, a pregnant multipara, strained to lift a heavy weight of clothes. Pain in the abdomen came on and rapidly increased in severity. The temperature rose to 104°, the pulse to 120. Labor came on; a dead child was born. The pains grew worse. The abdomen became distended, the pulse rose to 140, and soon after the placenta came away she died. The post-mortem showed that the uterus was healthy, but that a large quantity of fluid blood which filled the abdomen had evidently come from the adhesions around the ascending colon, which had recently been ruptured. There was no sign of anemia, and the hemorrhage had not been diagnosed."

I once saw a case, precisely like this, occurring in the practice of the late Dr. Craig.

I must not weary your patience, or I might continue and illustrate by cases such other rare conditions as present in the causes of puerperal hemorrhage. Every case of hemorrhage is a study within itself. In addition to what I have so briefly stated, the relaxed and abnormal position of the organ must be recognized. When corrected, how quickly contraction will at once go on and control the bleeding! It has been well said: "The best preventive of uterine hemorrhage is absolute control of the uterus."

"All the same conditions which cause primary hemorrhage may cause hemorrhage at any time during the puerperal period, and in addition to these there are a few other causes. After the first twenty-four hours following labor, retarded involution of the uterus stands in the same causal relation to secondary hemorrhage as deficient contractions to primary hemorrhage. In other words, it is the most frequent cause of secondary post-partum hemorrhage."

In a recent paper by Mr. Jonathan Hutchinson, of London, entitled, "On Causes of Death in Midwifery," he states:

[1] British Gynecological Journal, May, 1892, p. 127.

"The statistics of midwifery, and the causes of death after childbirth, are not without their interest for the operating surgeon. To a considerable extent the same kind of risks are encountered after delivery as after a large operation wound, and the same kind of precautions are needed.

"My friend Dr. Aveling, one of the highest authorities on these matters, assures me that, in spite of all modern improvements in practice, the ratio of mortality after parturition in English practice has not been reduced lower than one in two hundred. The chief triumphs in recent days have occurred in the reduction of mortality in lying-in institutions. In private practice it is probable that for long the ratio has not been higher and that no great change has resulted recently. It would appear, to judge from the statistics of individual practitioners, that it is very difficult, even under the most favorable circumstances, to beat the record."

What are the means we are to make use of in these cases? I am convinced that they require the same line of work as the surgical ones suffering from shock and collapse.

First control hemorrhage; ice, hot water, electricity, and direct pressure of the abdominal aorta, are not to be lost sight of. In employing the latter I have often thought, if one had it at hand, to apply the large Lister horseshoe tourniquet would be wise. One soon tires of making pressure over this vessel. I have often been in doubt as to how rapidly the stomach does its work at such a time, but ergot, hamamelis, capsicum, and opiates must not be lost sight of; diffusible stimulants, nitrite of amyl, nitro-glycerin, hypodermics, transfusion of blood—saline solutions I believe equally as good—bandaging the extremities, and all methods employed which would be used for shock.

Each case, as it were, demands a special line of treatment, and then, in general, we may say every case will bear the carrying-out of a general course of treatment. Most certainly we ought at once to reach the cause, and the diagnosis must be made quickly. In all cases where we have reason to believe that portions of the placenta or clots are retained, I am sure greater use can be made of the large uterine curette, employing at the same time a free current of plain hot water. By the latter term I mean water at the temperature of 120°. The closure of the utero-placental vessels should

be uppermost in our minds, and methods employed should have this end in view.

"The value of the tampon of iodoform gauze in treating post-partum hemorrhage is proven by Staheli.[1] In the clinic at Berne, 9 fatal cases of post-partum hemorrhage occurred in 5424 births during a period of eight years. In 49 cases in which the tampon was used, better results were obtained than by any other method of treatment. These cases were divided into two groups—one in which the hemorrhage occurred from a source which was determined, and the other in which the tampon was used as a prophylactic against hemorrhage. In the first were cases of placenta previa, transverse position, and other similar complications. In the second class were cases of contracted pelvis and also of Cesarean section. In using the tampon, strips of iodoform gauze are preferred. Thorough antiseptic precautions should be taken to disinfect the patient and the material which is used."

Mr. Chas. M. Green, in the Boston *Medical Journal* for September 1, 1892, referring to the above article, gives, as the chief indication for tamponing the uterine cavity, atony of the central surfaces, general uterine inertia after Cesarean section, atony in uterine subseptus or bicornis, failure of contractions after removal of hydatidiform mole, and hemorrhage after labor in fibroid uteri; also for severe hemorrhage from tears in the vagina and cervix.

"It is gratifying to know that in the uterine tamponade with iodoform gauze, or, failing this, with sterilized strips of bandage or other suitable material, we have a sure means of arresting post-partum hemorrhage when the common methods fail. But it is hard to realize why in some clinics there should be so many cases of hemorrhage not readily controlled by uterine massage, ice, hot water, and other familiar measures. In fibroid uteri, or after extreme cervical tears, or perhaps after placenta previa and removal of hydatidiform moles, anyone may have alarming hemorrhage which the usual measures will not control; but there are many obstetricians who in a large experience rarely see a severe post-partum bleeding (except in the classes of cases above mentioned), provided the labor, including the third stage, has been properly

[1] Correspondenzblatt für Schweizer Aerzte, No. 21, 1891. Quoted in the American Journal of the Medical Sciences, January, 1892.

managed. However, an obstetrician should have many expedients and a readiness for prompt action in the face of hemorrhage which may soon prove fatal; and it is, therefore, well to know that in the uterine tamponade we have a hemostatic which has stood the test of experience."

In the last volume of our *Transactions* is a valuable paper on this subject by our worthy Fellow, Dr. Clarke, of Cambridge, in which he refers to a case reported by Dr. F. H. Davenport, where much good seemed to have resulted from the use of quinine given every two or three hours before the birth.

The second division of my subject—that of non-puerperal hemorrhage—is, and has been to me, in my gynecological practice and consultation work, one of much study and great anxiety.

Beginning my professional life as a general practitioner, and largely given to surgical work, I have always looked upon hemorrhage as a condition requiring prompt and energetic measures. Therefore, I studied from the first my cases of uterine hemorrhage with care, and the different phases they presented. It seems to me that there is no subject so important for us to understand thoroughly as the causes and conditions that produce this form of hemorrhage. The errors made by the patients in the estimation of their cases are so frequent, and yet so apparent, that the histories given us are often deceptive.

What a strange introduction is that of infantile hemorrhage—or infantile menstruation, as it has been classified in a few of our text-books! How little is known, and scarcely anything said, by many authors upon the subject! The pathological explanation of these cases—that of "excessive development"—is perhaps a correct one, and yet they are cases claiming our attention.

Take, for instance, the following one, which I was called to see, and which at times did present quite a serious flow, but which has required no especial local treatment, a general line being sufficient:

Supposed case of spinal trouble, but on calling found the following history: Saw patient September, 1882. Family history on both sides good. Child began a regular, normal flow at the age of four months, lasting from four to five days, and which has continued every twenty-eighth day since; two years and seven months old; weighing forty-

nine pounds; features and form that of a girl ten or twelve years old; mammary glands as large as a small orange; external labia large; all parts of vulva fully formed; mons Veneris well developed, covered with a full growth of hair; bright and intelligent, but easily irritated, especially so at beginning of menstrual epoch; does not seem to care to play with children her own age, appetite and tastes seeming to belong to an older child; never troubled with leucorrhea; never showed a disposition to masturbate—is, in fact, a very modest girl. December, 1882, and January and February, 1883, did not menstruate; was very fretful and wakeful at nights. March 18, 1883, flow came on again, and has been normal ever since, she appearing brighter in her disposition. No case of the kind ever known before in the family.

At the present time, June, 1892, she presents an appearance of perfect womanhood, her mental condition being that of girls of her age, although, as has been stated by authors, this mental and moral development does not correspond with the physical evolution that first presents in these cases.

Again, how important is the study of hemorrhage at the age of puberty! How many a young girl is allowed to drift on at this time in life without a proper looking into of her case until she has established a well-marked metritis accompanied with a uterine colic, or a more especially hemorrhagic form in which we have the alteration of the mucous membranes, and at last a fungus-like growth, resembling exuberant granulations, which will keep up a constant and profuse hemorrhage. It is quite as important for us to study this form of uterine hemorrhage as any condition of bleeding that may present following abortion or confinement. Take, as an illustration, that class of cases in which the young girl begins a menstruation, it being almost a constant hemorrhage. She is possibly treated intelligently after some form of medical treatment, until medicines, electricity, massaging, change of climate—all, as far as possible, have been tried, but she does not improve. She is better for a time, then to relapse. Now comes a time when I am certain the family physician should most earnestly urge upon the parents the necessity of physical examination either by himself or to be made by the specialist of that particular section.

I am no advocate of the unnecessary examination of young women, but I am certain that some cases are allowed to go on too long without this careful observance. And when once this examination is

made, how frequently it is found that there is present some form of flexion, with enlargement of the body of the uterus, tender and sensitive to the touch; or there is a stenosis of either the external or internal opening of the cervical canal with partially retained menstrual flux; or there is a polypus present; or, in a lesser degree, that condition denominated endometritis fungosa; or, as the result of some illness, some injury, a traumatism of any kind, a pelvic peritonitis, and your patient has that condition denominated in the text-books chronic endometritis, perhaps parametritis.

These are only a portion of like conditions found in these cases. Such conditions, with others that I have in mind, are so often found among a group of young girls which extends through school life into womanhood, and to be observed in a class of cases known as the invalid of the family. They are the cases which, for a certain number of days in each month, are to be placed in bed—not a great inconvenience to some; to others a loss of time, of labor, to be measured by the standard of wage-earning, and throwing upon some other member of the family a greater strain and probable illness.

These are the cases with which we are constantly coming in contact, and which require a more careful and thorough looking into. Medicines will sometimes cure, but not always. Perhaps a marriage and the birth of a child carries them on to an atmosphere of continued health, but this is rather the exception than otherwise. Too often the marriage is followed by a condition of invalidism distressing to both of the contracting parties, resulting not too infrequently in much suffering and misery.

A condition of hemorrhage that is likely to be met with at any time of life is that associated with fibroid tumors in some form, either the simple polypus, the small submucous, or interstitial fibroid, all of which give a train of symptoms, first of menorrhagia, then of metrorrhagia, at last leading to a careful examination. It is to me astonishing how long the young girl, the young woman, the middle-aged, the adult, the advanced in life, will continue under this strain of abnormal hemorrhage and seem to place so little stress upon it. In the case of the young girl the parents will continually offer the excuse that when she comes about a little more regularly all will be well. The middle-aged woman is continually thinking that it is due to some irregularity of menstruation that will probably right itself, and contents her mind in that manner. When once the age

of thirty-five or forty is reached she is constantly looking upon any form of hemorrhage as the approach of menopause; and how many are the sad cases that come under our observation through this mistaken idea! Even though the menopause has been passed for many years, yet upon the appearance of bleeding, how many, many cases in advanced life are looked upon as a return of the menstrual flow? I know of no particular point in the study of hemorrhage that needs to be pursued with such care and caution as at the time of the so-called change of life. This is a period when patients suffer on and on, unwilling to have a careful, thorough examination; and yet how necessary for the family physician to impress upon them the importance of knowing fully their real condition! Now is the time when the various forms of polypi and fibroid tumors are likely to present; now is the time when malignant disease is apt to show itself; and yet these cases are frequently neglected until the patient is in such a feeble state of health that when she does present for careful examination her case is almost hopeless. This too frequent belief that it is their change of life is something that women should know more about. In a paper entitled "She Thought it was Her Change of Life," published in the *Journal of the American Medical Association*, July 5, 1890, I have referred to this subject somewhat earnestly.

Of the many conditions that are apt to present as causes of hemorrhage, the bearing of sub-involution—chronic metritis—does not receive the attention always that it should. A condition of endometritis fungosa is also too frequently overlooked. Hemorrhagic metritis in its various forms is not as promptly recognized as it should be. The bearing of a lacerated cervix in its relation to hemorrhage, at all times of life, and especially at the menopause, should receive more careful study than it does. While I am frank to confess that the operation for closure of lacerated cervices has at times been carried too far, yet there are many, many cases neglected and allowed to go on until, through the hemorrhage that is continuous, the element of malignancy is allowed to enter, and a change is observed so that from a simple lacerated cervix we have to deal with an epithelioma.

Let me illustrate a condition that too frequently presents in our hospital practice:

Mrs. I., aged thirty-two years, presented herself for examination August 8, 1892; mother of five children, four of whom are living.

The last child was born seven months ago. Two months previous to this confinement she noticed an occasional bleeding from the vagina, but gave it no especial concern, thinking it was the outgrowth of her then pregnant condition. She flowed very little at the time of her confinement, and apparently, from her description, it was quite normal; but since then she has flowed more or less, sometimes quite severely, then again would go for a period of two or three weeks without any show. Three weeks ago she consulted a physician, who told her that she had serious ulceration of the neck of the womb. On making an examination I found a severe laceration of the cervix on one side, while the other portion was entirely destroyed by epithelial ulceration, the walls of the vagina invaded, the uterus fixed, and the broad ligaments infiltrated—a sad, sad case of epithelial cancer, and in which nothing could be done in the way of an operation. This condition had stolen upon the patient quietly, without giving any alarming symptoms, yet the ulceration must have been present at the time of the delivery of her child, but was unobserved by her then medical attendant.

These cases of lacerated cervices more frequently give an intermediate history of prolonged flowing between their pregnancies.

In many of these conditions that I have referred to the hemorrhage continues through many months, and suddenly the patients find that they are invalids. There is but little pain associated with it; there is some backache, some pelvic distress, now and then menstrual pains, but the patient goes on to a dangerous condition of anemia, and her state of health is alarming to her friends. How soon we recognize the expression of the face in such cases as they enter our office! That condition called membranous dysmenorrhea, if not in many cases thoroughly controlled, leads to hemorrhage which becomes severe and carries our patient into all the tissue changes of the uterus, which are so frequently observed when at last the patient does come under observation and for treatment.

We must never lose sight of the fact that not infrequently diseased tubes, diseased appendages, may be the cause of severe uterine hemorrhage; the possibility of a small ovarian tumor producing hemorrhage is not to be overlooked. These experiences have come to many, and doubtless to most of us.

Next to the importance of the study of hemorrhage connected with fibroid tumors (and let me say just here that we must lay more stress upon the fact that these tumors will grow and develop after

the menopause, and that the element of hemorrhage becomes a very serious symptom) is that to be observed after the supposed change of life, after the patient has really and fully passed her menopause. She has now had a period of absolute rest for three, five, or more years, but suddenly she has a hemorrhage. If left to herself she is likely to conclude that it is a return of her menstrual periods, but in the majority of cases it is the forerunner of some malignancy. However, there are many exceptions to this latter view of the case. Take, for example, the following cases from my note-book:

Mrs. R., aged sixty-three years, who had passed her change some thirteen years before, had been in apparently good health, when suddenly she began to flow, and believed that her periods had returned. The case would naturally arouse one's suspicion as to malignant disease, and yet this was nothing more than a simple hemorrhage due to a slight endometritis, which finally passed away under treatment, and the patient continued in good health, dying at the age of seventy-five. We would naturally conclude, and with truth, that the chances were that she was developing a case of malignancy.

Another case, that of Mrs. F., aged seventy-four years, whom I saw fifteen years ago in consultation with her family physician, had a flow develop some ten years after her change, which had been a source of great alarm to herself and family. Upon examination I feared, from the hardened condition of the cervix, that it was likely to be a genuine case of carcinoma; yet upon removing some of the detritus from the cervical canal and examining it, it did not present any of the characteristic conditions of malignant growth. It was evidently a case of endometritis fungosa. Curetting was done; applications were also made to the lining membrane of the uterus, and which seemed necessary about once in six months or once a year, sometimes going on much longer than that. At the present time she occasionally has a slight hemorrhage, but is in excellent health, has no enlargement of the organ or infiltration of the appendages.

I have seen many patients who would develop a hemorrhage at this time from simple endometritis, endometritis fungosa, from the development of a small fibroid tumor or polypus, from other conditions not unlike those which present previous to the change of life—many conditions strictly non-malignant, and which the patient should have the comfort of knowing, for which a simple line of treatment is sufficient.

I have realized for a number of years that the diagnosis of carcinoma of the body of the uterus, in its early stages, particularly when it is present after the menopause, is not by any means easy.

The *American Gynecological Journal*, November, 1891, contains a translation of an article by Hofmeier and Leopold (*Gazzetta degli Ospitali*) upon the subject. Hofmeier regards cancer of the body of the uterus as an epithelial growth having its origin in the superficial epithelium or in that of the glands. Leopold holds practically the same view, and insists that such tumors never originate in the connective tissue. He advises the abandonment of the term "malignant adenoma," for the word adenoma indicates a benign glandular tumor, and if the neoplastic glandular tumor presents the characteristics of malignancy the condition in question is a papillary carcinoma.

"The development of the growth is said to depend upon a diffuse infiltration much more frequently than through the formation of isolated nodules. Hofmeier states that cancer in this part of the uterus develops frequently in multiparæ or women of small family, and rarely appears before fifty years of age. The earliest symptoms are usually hemorrhages, which are followed by a serous discharge, more or less fetid. Pain similar to that of uterine colic is also present."

In others of my cases the element of hemorrhage was most persistent, and finally led to a correct diagnosis—that of true cancer—all methods of treatment having failed, and only complete removal of the organ was left to do.

In these cases of persistent hemorrhage from the body of the uterus that continues after curetting, we should be thoroughly aroused in our suspicions of malignancy. The following case will illustrate and show the necessity of thorough, careful watching of the patient after one curetting:

Mrs. E. M. K., aged thirty-eight years, married seventeen years; one child, aged sixteen years; confinement normal; never had any serious illness; regular in her menstruation; became a widow seven years ago; married her second husband five years ago, and has been perfectly regular in her menstruation until her present trouble. Believed herself to be well, when suddenly, in May, 1892, she had a severe attack of hemorrhage. She was seen by her attending physician, and, after a thorough course of medicine, submitted to a thorough curet-

ting of the uterus some time in the latter part of June. In July she had, as she believed, a normal, regular menstrual flow. Some time during July she was visited by her family physician, but no examination was made. In fact, no examination was made at any time after the curetting, as she stated. In August she had another severe hemorrhage, the local pain being now very severe, her system showing much exhaustion. She came to my office August 25, 1892, presenting the characteristic appearance of great loss of blood. I gave her a careful examination, and found a large epithelial growth, implicating the entire cervix and extending somewhat down the vaginal wall. The mass was movable, but there was evidently infiltration of the broad ligament. I did not think an operation advisable.

Had this case been carefully watched after the curetting, it would have been apparent in a short time that vaginal hysterectomy would have been the proper operation for her, and might have resulted in permanent recovery.

This patient has, at various times since curetting, been anxious to have another examination and the more complete operation, as she informs me, but that her female friends, the old ladies particularly, were constantly importuning her not to have anything more done, as it was simply her change of life, and that she would come out all right later on.

Among the conditions that occasionally keep up a uterine hemorrhage, the pathological state called hemato-salpinx perhaps is quite as difficult as any to make a diagnosis in. The symptoms are very likely to be overlooked. The patient is treated frequently for a long time for some believed diseased condition of the cervix or body of the uterus, and the true trouble is not reached until, as it were, by the method of diagnosis by exclusion. It is likely to be confounded with hemorrhagic endometritis, where there is a constant dribbling of blood instead of the normal menstrual period, whereas in the hemato-salpinx we get a more decided flow, a hemorrhage that is inconsistent with the pathological condition of the uterus itself. Hemato-salpinx cannot be looked upon as a simple transitory pathological incident.

Few men have done so much to impress upon us the importance of a proper understanding of true hemato-salpinx and the necessity for an operation, the pathological changes that will occur making the case one of pyosalpinx with all its attendant dangers, as has

our Fellow, Dr. Joseph Price, whose ideas are now being incorporated in our most advanced text-books upon this subject.

Reviewing, then, somewhat briefly the subject of uterine hemorrhage, one is impressed, particularly as we take into consideration our gynecological and consultation work, with the necessity of studying each case carefully, and reaching a correct diagnosis as early as possible. When once that has been accomplished, what is to be our line of treatment?

Take the case of prolonged hemorrhage in girlhood. The conditions present are such as we have referred to—a flexion of some sort; a stenosis with enlargement of the body of the uterus; the endometrium is covered with a fungoid growth; small polypi are present; there may be a true condition of endometritis fungosa; perhaps there may be present a distinct polypus. Have we any better line of treatment for these conditions than a thorough, careful dilatation of the cervical canal, complete and thorough curetting, and then with care packing the cavity of the uterus with sterilized gauze, dipped or not in a solution of some mercurial, or iodoform gauze, thereby maintaining complete and thorough drainage? This is a method of treatment I have followed out for the past five years, enlarging upon it more and more as the degree of safety seems to have become greater, occasionally allowing the patient to wear afterward, for relief of the flexion, an intra-uterine stem pessary. I believe that in all cases where a simple uterine polypus has been removed, a thorough curetting should be done, and packing with gauze carried out.

Take the condition of hemorrhage that follows parturition, and which keeps up for many months or years, as the result of subinvolution—chronic metritis. The patient has probably been given medicines unlimited, yet her recovery will not follow until some such line of treatment is pursued.

In the treatment of hemorrhage due to uterine fibroid, I am thoroughly anchored in the belief that for the small, persistent bleeding fibroid there is no better course to be pursued than the removal of the uterine appendages, although it is possible now and then, when the fibroid is simply submucous, that by careful curetting we may be able to enucleate it sufficiently, or that the uterus will take on contractions and force it out, thereby saving

our patient the more formidable operation. However, these cases must be handled with great care. Rigid antisepsis must be carried out, and the after-treatment cautiously pursued, or septic conditions will develop. In a medium-sized or large fibroid, where it becomes difficult to remove the uterine appendages, and the hemorrhage is gradually destroying the patient, there can be no better treatment, it seems to me, than hysterectomy in some form; and when we consider how favorably these operations are presenting in the hands of such men as Joseph Price, Ross, Eastman, and others, we cannot but believe that our position should be strong in discouraging the use of electricity and of temporizing. Yet occasionally a case is brought to us in which the hemorrhage has continued so long a time, the tumor having grown to that size that the patient is so feeble, so anemic, with occasional attacks of syncope and loss of appetite, bloodless lips, and waxen face, that the operation of hysterectomy is quite out of the question. She will inevitably die of shock. Can we do anything for her to bring her into better condition? I am most emphatic in saying that I believe we can; that these cases, by being carefully and thoroughly curetted, can be improved so that they may recover sufficiently to stand the more formidable operation later on. I might refer to cases to illustrate my point, but I have done this somewhat more fully in a paper that I am about to read before the Vermont State Medical Society. However, I would like to present some points in connection with the following case taken from the *British Gynecological Journal*, May, 1892, page 71, reported by Mr. Bowreman Jessett. He says: "It appears to me that, with our present knowledge of the different methods of performing hysterectomy, it is very difficult to lay down any hard-and-fast rule as to which is the best method of operating in this or that case. As we all know, who are in any way versed in these distressing cases of myomata connected with the uterus, one rarely meets with two cases alike; and although we may decide upon one plan of action before opening the abdomen, yet when the tumor and its surroundings are brought into view, we may have to adopt a totally different course to that originally planned."

"Patient, aged forty-four years, a fat and somewhat phlegmatic woman, came under my care June 13, 1891. Married; no children; no miscarriages. Ten months before admission into hospital she had

a flooding, and another, very severe, four months later, since which time never entirely free from hemorrhage. Considerable pain in abdomen and back, especially right side; micturition very frequent. Hard, solid tumor in abdomen, rising to within an inch of umbilicus. Os felt with difficulty. Varicose veins in one leg; eczema in both legs. Patient kept absolutely at rest for six weeks and treated with iron and ergot. *Per vaginam*, uterus found to be drawn up out of pelvis. Left hospital July 29th, having had but one attack of hemorrhage. Attended as an out-patient, but flooding returned with eczema. Re-admitted September 17th; treated again in former manner; no return of hemorrhage for six weeks; discharged October 5, 1891. Circumference of abdomen at umbilicus, thirty-nine and one-half inches. Umbilicus to left iliac crest, nine inches; to right iliac crest, eight and one-half inches. Umbilicus to ensiform cartilage, seven inches; to pubis, eight and one-half inches. Suffered from vomiting and constant desire to pass water. Hysterectomy suggested, but postponed on account of age, hoping at menopause hemorrhage would cease. Re-applied for admittance, much worse, December 30, 1891. Begged for an operation, and on January 19, 1892, I performed abdominal hysterectomy."

He here describes his method of operating very fully:

"She was very collapsed after operation, and died on the 21st, or thirty hours after operation. At post-mortem there was no hemorrhage or peritonitis to account for death, which can only be attributed to the unsatisfactory state of health she had been in for so long a time."

This patient died from shock, and death was probably due to the great loss of blood that had been going on for so long a time.

She illustrates clearly a class of cases that are left too long by the general practitioner—bleeding, bleeding, ever bleeding; they have applied electricity and tried various forms of remedies, but only to let the patient keep on bleeding. I must repeat: let these cases have the benefit of curetting, and then the more formidable operation of hysterectomy.

As to the class of cases in which hemorrhage occurs at or after the menopause, if we cannot be certain that they are maliguant, requiring either a vaginal or supra-vaginal hysterectomy, let us give the patients the benefit of the doubt, keeping them from the atmosphere of fear of malignancy just as long as possible; but in

the persistent hemorrhage that may come on from the non-malignant conditions that present after the change of life, let us by all means give them the benefit of thorough curetting and the treatment that I have endeavored to bring out in this paper.

I know that there have been many criticisms made upon the question of entering the cavity of the uterus in so formidable a manner, but I am certain, from the experience I have had in many cases, that it is a safe procedure, but must be done in the most thorough way as to cleanliness and drainage, and I believe there is no drainage superior to that of the gauze packing.

DISCUSSION.[1]

Dr. J. Henry Carstens, of Detroit.—Mr. President: The President's Address deals with an important subject, and I will add but a few words in reference to post-partum hemorrhage. There are two points that I wish to criticise. The use of ice I consider bad practice, because I think ice is not an aseptic agent. It is frequently obtained from some creek that is full of microbes. One remedy which is universally known, and which is a common thing that can be obtained anywhere, and will stop post-partum hemorrhage as promptly as anything possible, is vinegar. Just inject a little vinegar into the uterus and the organ will contract promptly. Where we have a case of slow labor and suspect post-partum hemorrhage may come on, if we have a little vinegar on hand as soon as there is relaxation of the uterus, and simply inject it, it will contract the uterus. Vinegar is aseptic. Hemorrhage of the uterus occurring at other times is a very serious problem indeed. Especially is this so in cases of adenoma, and we scrape and curette the uterus, as I did in a case where I was positive not a particle of mucous membrane was left, for I had scraped it out entirely and then used fuming nitric acid. In a few months the condition recurred. I have curetted over and over again until my patients became discouraged. I have curetted some as many as thirty times, and still the growths would recur. These cases were simply in the pre-cancerous stage. I have quite a number of specimens on hand now which I am hardening with a view to make slides from

[1] It is not the custom of the Association to discuss the President's Address, but it was done in this case by special request of the President himself.

them, and hope to exhibit them at our next meeting, and to show also a method of the early diagnosis of cancer. Where we have a woman who has passed the menopause, and who has a bloody discharge that is more or less ichorous, it is suspicious. These cases should be curetted and the products of the curette examined by the microscope with a view to ascertain as to their malignancy; if then any evidence is found to this effect, it is the time for vaginal hysterectomy.

I was called by a physician to see a woman with a lacerated cervix. There was a little ichorous discharge associated with the laceration, and the cervix had a peculiar look. I said to the doctor, We will sew it up; we will carefully save what we get from curetting the mucous membrane, and then carefully examine it by the microscope; if then we find the slightest evidence of malignancy we will resort to vaginal hysterectomy. We must be careful to examine microscopically the curettings which we get from these cases in order to make a diagnosis of malignant disease *early*.

Dr. William H. Taylor, of Cincinnati.—You know the witty reply that was made to the inquiry as to how early a child's education ought to begin. The reply was, Twenty-five years before its birth. I think the treatment of puerperal hemorrhages ought to begin several months before they occur. I think that where we are anticipating attendance on a case of labor, it is of the greatest importance that we should carefully investigate weeks before confinement the character of the woman's health, and wherever there are the least indications of cachexias of any kind we should carefully treat them. I came very near losing a woman, who was a stranger in my city, with a hemorrhage at the time of delivery, who, I then learned for the first time, had had chronic malaria. She told me that she had bled very seriously and alarmingly at her menstrual periods. Now, in such a case as that, in a woman in whom Bright's disease is present, or any other indications of lowered vitality, it is of great importance to deal with the case long before the time of delivery.

Then, again, I most heartily approve of the suggestion that I got from Professor Lusk, of New York City—namely, to prepare for a hemorrhage in every case of labor, and ever since I learned that from him years ago, it has been my habit to do so. It costs nothing whatever to charge your hypodermic syringe with a solution of ergot. I give the most positive instructions that there shall be hot water ready in the room at the time of delivery. Of course, 99 times out of 100 we do not use any of them, but we at least have had the comfort of knowing that we were prepared for an emergency if it came. I think ordinarily we

can predict before delivery with a good deal of certainty the occurrence of hemorrhage. Where the pains of labor increase steadily in intensity and in frequency before the expulsion of the child's head, there is little probability of any excessive hemorrhage. Where a woman has been a long time in labor, wherein the last three or four hours before the birth of the child the pains have been growing less frequent and with diminished force, we hazard very little in predicting hemorrhage, and "to be forewarned is to be forearmed." A man should be well prepared to meet a case of that kind. I have suggested that we make preparations to deal with a hemorrhage of this kind. One of the most injudicious things we can do is to use that word in the hearing of a patient, for every woman knows what "hemorrhage" means. If she hears the least suggestion about it, it will increase the probabilities that she will have it.

I think Lusk, in his work on *Obstetrics*, makes the assertion, that the physician is responsible if he loses a woman with post-partum hemorrhage. I would not in the least detract from the grave responsibility that is properly placed on the attending physician. He ought to feel it. But there are certainly cases in which he is in nowise responsible, in which the conditions which lead to that hemorrhage are present before he deals with the case, or are present in a certain degree before labor begins, and especially in cases where the hemorrhage is likely to occur—slow cases of labor, where the pains grow less and less. You are perfectly well aware that the uterine tissue degenerates. You know how readily the vagina or perineum will tear after a lingering labor. We have just the same conditions existing in the uterus, and that necessarily implies a loss of the contractile power of the uterus, and upon that above everything else must depend our ability to arrest hemorrhage. If this proposition is true, then the other one must be true, that the physician is not responsible if the uterus does not contract—is not responsible if the woman bleeds. In the great majority of cases the physician can stop the hemorrhage, and if he does not stop it he is morally responsible; but, as R. Lomer says: "In spite of all treatment deaths occur from atony of the uterus. I have seen women die in my clinic where all means of treatment were at hand, and at the autopsy the uterus was found with walls as thin as paper, and suggesting a failure of development."

There are other reasons than those given by the gentleman who protested against the use of ice. I do not approve of it. I do not think it is well to use it. I think that in those cases in which we have reason to believe that hemorrhage will occur, if we will carefully follow the expulsion of the child down with the contracting uterus, making

pressure upon it, we can often prevent hemorrhage; not always, because of the conditions which I spoke of as previously existing. Such a uterus will not contract.

It is a routine practice with me to administer a dose of ergot just as the placenta is delivered. It really does no harm, and in many cases it contracts the uterus, so that it may prevent a hemorrhage. I always carry with me a preparation of ergot, with which you are familiar; it is a liquid preparation; it is not a fluid extract; it is an aqueous solution of ergot; it undergoes no precipitation as does the fluid extract, contains no alcohol, is not irritating, and is ready for hypodermic use. Ergotine takes time to prepare, or it decomposes if it is not used soon. The preparation which I use remains perfect unless exposed to the temperature of freezing of water; that spoils it. Other than that it is ready for use. I use it hypodermically. It is well to bear in mind the fact that the muscular structure of the uterus comes under the head of unstriated muscle. Like the muscular coat of the intestine, it alternately contracts and relaxes. When we fear a hemorrhage we continually stimulate the uterus to contract. Instead of giving it a period of rest between its activities, we get it continuously contracting, and in a few minutes its contractile power is exhausted. It is important to keep that fact in mind. While the hand may be kept on the abdomen constantly, to watch the uterus, it should not be constantly stimulating the organ.

The use of hot water has been satisfactory in my hands where it has been necessary to make an injection into the uterine cavity. I have used tincture of iodine; I have used vinegar, as suggested by Dr. Carstens. Ordinarily with one of these or other preparations we can excite contraction of the uterus. But there are cases occasionally in which the tissue is degenerating, in which nothing you can attempt will induce good contraction of the uterus, and where the probabilities are very great that the woman will die from hemorrhage. I believe there is nothing to be relied upon so certainly, and nothing which the testimony of very excellent observers both in Europe and in this country lead us to trust to so much as Dührssen's packing of the uterus with iodoform or antiseptic gauze. If we are not so fortunate as to have that, take a piece of clean muslin, make it antiseptic, and pack it into the uterus. It is easily done. It is an operation that is not at all difficult when we consider its importance. With this we have a stimulation which is persistent, and if the uterus does not contract to any considerable degree the pressure of the gauze upon the bleeding vessels is likely to be sufficient to arrest hemorrhage for the time being as a last resort. I believe this is the proper remedy. A prominent German obstetrician (Lomer)

has lately suggested, in those cases of relaxed uterus where there is no contraction, a laparatomy and constriction of the neck and removal of the uterus. Theoretically that sounds well, but as it would be contemplated only in cases where all other means had failed, and therefore the patient would be profoundly depressed, I believe so serious an operation would lead to speedy death, and, practically, it is not to be considered.

Dr. H. W. Longyear, of Detroit.—One point touched upon in the paper ought to be emphasized a little more—namely, the too early delivery of the afterbirth by the Credé method. Where the afterbirth is immediately expressed after the delivery of the child, it is liable to result in hemorrhage. I had some experience in that particular in my earlier practice, and it has led me to follow the rule of holding the uterus from twenty minutes to half an hour after the child is born before delivering the after-birth.

Dr. John Milton Duff, of Pittsburg.—I do not want to take up an undue portion of the time of the Association; but I think a paper so worthy as the one just read and upon a subject so momentous as is post-partum hemorrhage, which should be of intense interest not only to the specialist but as well to the general practitioner, ought not to be passed over without that consideration its eminent importance entitles it to. Post-partum hemorrhage is one of the gravest accidents with which we meet in obstetrical practice, and in treatment none other calls for more ready knowledge or more consummate skill. It is true it is, or should be, a rare accident. I do not pretend to say it is always an avoidable accident, for this would be far from the truth; but I believe we are justified in saying that when it is of very frequent occurrence in the practice of any given practitioner, there is something radically wrong in his methods. It is an accident, however, which we should always be on the alert for, and I can say I have but little sympathy for the practitioner who recklessly attends a case of labor, with disastrous consequences, when he has not carefully supplied himself with all necessary measures for meeting emergencies such as that under consideration. It will not do to say after the victim is dead, "I never had a case of the kind before, and they are of such rare occurrence that I did not deem it necessary to be specially prepared for it." A gentleman of thirty years' experience as an obstetrician, an excellent physician, who has frequently ridiculed me with regard to my special preparations for attending a case of labor, and who himself is not in the habit of making special preparations, was unfortunate enough a very short time ago to have a case of post-partum hemorrhage. He

was unprepared for the emergency. He sent for the nearest physician, but by the time assistance arrived the patient was dead, and when I arrived, soon afterward, I was met at the door with the word that my services were not needed as the patient was dead and the doctors had gone home. I do not wish to unjustly accuse him; perhaps his patient would have died under any treatment; but I feel confident there would have been a better chance of saving his patient if the doctor had been prepared to meet the emergency. I think our moral obligations are to be ready to meet any of the accidents of labor which need prompt and immediate action. What would be said of an abdominal surgeon if it was found, while he was operating, that his patient must succumb from an accident which he had neglected to prepare for? Would it be a sufficient excuse for him to say that he had with him the instruments, drugs, and appliances needed in a majority of cases?

You will infer from my previous remarks that I regard the frequent occurrence of post-partum hemorrhage as avoidable if proper precautions have been taken by the attendant. The necessary precautions have been well presented by the reader of the paper, and it is unnecessary to recapitulate.

With all due respect to my able friend Dr. Taylor, of Cincinnati, I want to say that I believe the habit of administering ergot as a routine practice during or after the third stage of labor is pernicious. By this assertion I do not mean that I would not give ergot when I saw it was indicated. I have great confidence in ergot, and would hesitate to attend a case of labor without having it within easy reach. I seldom give it until after the third stage, and then only when I believe it to be positively indicated. After long-continued and careful observation of cases where it was, as well as of cases where it was not, administered, I have been forced to the conviction that it is only necessary in comparatively a few cases; that it is not altogether a harmless safeguard against hemorrhage, and that its routine administration is inexpedient. It is unnecessary in normal cases, because, if the attendant has carefully watched and assisted the uterus in its contractions with his hand upon the fundus during delivery, the danger of hemorrhage is reduced to a minimum. It is inexpedient, because in a normal case it frequently produces more severe and continued after-pains and consequent nervous irritability, and thus increases the discomfort of the woman. It is not altogether harmless, because it may increase the danger of sepsis, delay involution, or be productive of concealed hemorrhage. I regard this matter as worthy of your most careful consideration; but time will not permit further discussion.

With all due deference to Dr. Carstens, I say that vinegar will *not always* stop hemorrhage. I have seen cases in which it was tried thoroughly, without avail.

Unless I am mistaken, neither in the original paper nor in the discussion so far has there been any reference to post-partum hemorrhage occurring from any other point than the placental site. Some of the worst cases of hemorrhage and hardest to control I have ever seen have been from uterine rents. A short time ago I was called in consultation with two gentlemen who had a case of face presentation. The woman just delivered was bleeding violently. I placed my hand over the uterus and found it contracted. I took hold of the cervix with a pair of forceps, pulled it down, sewed up a rent I found there, and the hemorrhage ceased immediately. I have seen several cases in which almost exactly similar conditions existed, and they are, I think, worthy of record.

I do not think it is good practice to tampon the vagina where the hemorrhage is from the placental site. If it is from a torn cervix or a lacerated vagina, and suturing was impracticable—which is very seldom, if ever, the case—I would recommend a tampon in the vagina. In hemorrhage from the placental site I know of nothing in the line of treatment which is more prompt and more readily used than a tampon of iodoform gauze in the uterus.

One more point and I have done. The reader of the paper said, after reporting a case: "*And the patient was happy in the fact that her attendant was a surgeon as well as an obstetrician.*" I think it ought to be accepted as a fact, and emphasized not only in this Association, but all over the world, that those who are divorcing obstetrics from gynecology and surgery are putting their feet upon the progress of the obstetric art. I can conceive of a man being a good gynecologist or surgeon and being only a moderate obstetrician; but how he can be a good obstetrician and neither a gynecologist or surgeon, I cannot understand. I hope and pray that that relic of the dark ages, the simple midwife, may soon be swept from our land, and none permitted to undertake the sacred duties of the accoucheur except those who are physicians in the fullest sense of the term.

Dr. W. P. Manton, of Detroit.—At the last meeting of the Michigan State Medical Society, I read a paper on this subject in which I made a statement similar to the one quoted by Dr. Taylor from Dr. Lusk—namely, that a man who loses a case from post-partum hemorrhage is culpable. I was criticized for the statement. I did not know, at the time, that Dr. Lusk had stated the same. I do not

see any cases of post-partum hemorrhage in my own practice, but I do see them occasionally in consultation. I think the reason is either because my practice is confined to that class of patients who are not particularly liable to post-partum hemorrhage, or because I watch them carefully during pregnancy—if they engage me early enough—as well as labor.

I agree with what Dr. Longyear has said in regard to the too early removal of the placenta by the Credé method. Credé advised against too early removal. He devised the process to prevent post-partum hemorrhage. If you read his first article in the *Archives of Gynecology*, a number of years ago, you will find that he makes this statement. He afterward wrote another article in which he stated that the placenta should not be extruded immediately, but we should wait until the third or fourth uterine contraction following the delivery of the child. It is my practice to follow down the uterus during the delivery of the child, or have the nurse do so, keeping the hand on the uterus until the third or fourth contraction takes place and then expel the placenta by Credé's method. I also keep the hand on the uterus for one hour following the extrusion of the placenta. I also agree with Dr. Taylor, that although it may not be necessary, it is a good routine practice to give a drachm of ergot immediately after the expulsion of the after-birth. I believe in every instance the ergot itself has an influence upon the unstriped muscular fibres of the uterus, and we get good results from its use. I have seen hundreds of cases delivered in the maternities abroad, in which not a drop of ergot was used, with as good results as I have seen in this country where it is so extensively employed; but at the same time I believe it is good routine practice to give ergot. I do not believe that if the uterus is controlled for one hour following labor you will ever get a case of primary post-partum hemorrhage. Post-partum hemorrhage is divided into two groups—first, primary hemorrhage, which occurs within twenty-four hours after delivery; and second, secondary hemorrhage, which comes on after that period. One cannot always be held responsible for hemorrhage coming on later. Unless there be disease of the uterus or a large fibroid tumor, if the uterus is controlled you will not have the slightest excessive loss of blood.

I am greatly in favor of Dührssen's method of treating these cases, but I agree with Dr. Duff that iodoform gauze is the best material we can use. While iodoform is not the best antiseptic, it has antiseptic properties; and it is also slightly styptic, which is advantageous in this class of cases. It is a simple matter to pack the uterus. I use an ordinary bivalve speculum and the applicator which goes with Wylie's

cervical speculum. I always carry in my obstetrical bag rolls of two-inch-wide iodoform gauze for uterine packing. In two minutes' time the uterus can be so thoroughly packed that not one drop of blood will exude, and the life of the patient saved, provided the hemorrhage has not been too great before the physician is called in.

In one case that came under my observation the woman was bleeding to death, and the doctors did not know what was the matter. They had tamponed the vagina, which, by the way, is bad practice, and had given her various remedies, but before I arrived she had had several convulsions. She was almost *in extremis*. I immediately removed the remains of the product of conception, and found on passing my finger into the uterus that one side was quite immobilized by an intra-mural fibroid. The other side had contracted well. I packed the uterus and then the vagina with iodoform gauze, and the woman made a good recovery. The temperature was elevated at the time, but it soon went down and she had no further trouble. She will have trouble, however, if she again becomes pregnant before something is done for the intra-mural fibroid.

Dr. Joseph Hoffman, of Philadelphia.—In this matter of post-partum hemorrhage I am theorizing. I have never had a case. I do not think they ought to occur. The man who lets a patient die from post-partum hemorrhage is reprehensible and criminally responsible. We have means of controlling the hemorrhage, and I think during labor we should help the uterus to contract between times, stimulating it externally while labor is going on. We should help it to normal contraction. I think the habit of leaving the house in a very great hurry after the child is born is fraught with danger. No obstetrician ought to leave the house without making a careful examination after delivery, or when he is about to leave. This is routine practice with me. I have never had a case of post-partum hemorrhage, and I hope never to have one. I do not use ergot; I do not believe it is a necessary article. I think its use may in many respects be dangerous. However, this subject has been almost exhausted, and I shall not continue it. I shall give to the Association a few things which I have noticed as a cause of hemorrhage in the non-puerperal state. Miliary tuberculosis is a cause of hemorrhage. It simulates a variety of conditions, and is most perplexing both to the diagnostician, to the general practitioner, and to the surgeon. Two things that miliary tuberculosis simulates are pus and ectopic gestation. I shall call the attention of the Association tomorrow to two or three cases in which ectopic gestation was diagnosticated, one case especially which presented all the appear-

ances and symptoms of ectopic gastation, even to the irregular bleeding, and a variety of other conditions which made it perplexing. I have noticed this in more than one instance. I would therefore suggest that in each and every case miliary tuberculosis be considered. It will put you often on the right track and save the life of the patient. Pus in the tubes and ovaries is a pregnant cause of irregular bleeding. All operators know that, and oftentimes they are puzzled to know why it should be. Pus in the tube and ovary on one or both sides may be removed. I remember, in some of my earlier cases, I was much perplexed. I am perplexed now, so far as an explanation is concerned. I said to my friend Dr. Price that So-and-so was bleeding again. He paused a short time, and said the operation was not done right. That settles it. That was not very encouraging. Pretty soon I learned that some of the patients of my friends were bleeding, too, after the ovaries and tubes were removed. Dr. Johnstone, of Kentucky, thinks he has discovered the cause of this hemorrhage in a nerve which goes down into the horn of the uterus. In many cases in which the tube was clear down into the body of the uterus, when I scooped out the tube and put a ligature around the bleeding was gone, happily, notwithstanding this very beautiful theory.

We have flexions and versions as a cause of hemorrhage in the nonpregnant uterus. These are always to be considered as a cause of bleeding from the engorgement which follows them. I have a case in which I operated, in which bleeding occurred early. The girl began to menstruate at five years, menstruated every two weeks until she was ten, stopped at ten, began at sixteen again, and continued until she was twenty-eight or twenty-nine, when she menstruated every three weeks. This was her history. I found a large dermoid cyst on one side which had gone on to suppuration, and was the cause, I have no doubt, of the irritation and trouble which caused all the symptoms—early bleeding, etc. I do not know that it ought to be called menstruating—this irregular bloody discharge, as it happens in young children. It seems to me it is a result of some pathological condition, and I doubt not a dermoid tumor in some shape is at the bottom of a great deal of the trouble. Where the condition obtains it should be looked after and considered not a thing which passes off by itself. One thing more, and that is, the condition in which there is no menstruation in young girls where we ought to expect it. This is a condition that no false modesty, no false conceptions of what children ought to be subjected to, should prevent proper action. Wherever menstruation does not occur it may be the cause of ill health—simply physically an incapacity in a young girl to produce blood enough for menstrual discharge—or there

may be obstruction. Only a few weeks ago I saw the case of a sixteen-year-old girl who had not menstruated up to that time. She began to complain of pain; she could not sit down with any comfort, and her life was miserable in the extreme. I made an examination, and found a tumor extending up to the umbilicus. It was round and hard. It proved to be an enlarged ovary. I found the whole trouble was due to an imperfect hymen, which was unusually thick. The vagina was lengthened also; carried up to where the menstrual blood accumulated. In these cases there is some pathology behind them, and we should always carefully look after the cause.

Dr. A. Vander Veer (closing the discussion).—The President desires to express his thanks for the kind manner in which the Fellows have discussed his paper. I have only to say that I think Dr. Duff misunderstood Dr. Taylor when he said that it was his constant practice to give ergot.

Dr. Taylor.—Yes; I make it a constant practice.

Dr. Vander Veer.—Then I am wrong. Do you give it in every case?

Dr. Taylor.—Yes. At the end of labor, but not during labor.

Dr. Vander Veer.—Dr. Manton refers to packing the uterus with iodoform gauze, a material which I spoke of in my address. I believe it can be done best in the Sims position and with a duck-bill speculum, holding the uterus in a fixed position by forceps. The sound is quite a useful instrument for introducing the gauze.

ABDOMINAL HYSTERECTOMY.

By JOSEPH PRICE, M.D.,
PHILADELPHIA.

THERE is no more interesting study than the history of the operation for removal of the uterus for the cure of fibroid tumor, when it is considered from a time standpoint. Removal of the uterus for any cause whatever was not long ago considered a very grave operation. The elder Keith, in his surgical day, standing as a firm believer of the legitimacy of the operation, stating its dangers and his wholesome dread of its performance, seriously reminds us of the prophets of old—a Jeremiah with his lamentations, a David with his song-singing, for the delivery that surgery in these cases gave, and now more emphatically gives, to women otherwise doomed to misery in all of its manifold states and stages.

Looking over the field, we have seen the contest between those who were content to palliate, while they knew that every day of temporizing was an approach to the inevitable end, and those who, while they appreciated the dangers of operation, know also that to wait only deferred the inevitable, and therefore, rather than to wait, chose to escape and make a road for escape, since one did not exist in the ordinary course of nature. We have seen, also, that they who have achieved the best results are those who have gone to work with an eye single to remove what was by them considered a foreign body, in the way least complicated, least prolonged, and least problematical. They studied their ground, as the surveyor his course, and went at their work mathematically, not theoretically. The surgery of the uterus, whether for its entire or partial removal, is a work of differentiating accidents from constant conditions. That operation must eventually be considered the best that will on the average meet the indications most completely. There is no

use in studying and pondering over the various combinations of instruments possible to use in this operation, in order to strike something novel, for any such work of the imagination is going to be ruled out before the very first array of solid surgical difficulty that the next complicated operation brings.

Just here it is impossible to pass over the ridiculous argument against the clamp or the serre-nœud as an objectionable instrument to the operation for abdominal hysterectomy. It is called clumsy, unscientific, barbarous, dangerous, and what else little matters. Scientifically considered, what is the serre-nœud? Well, as I take it, it is nothing else than a wire ligature. Now the whole truth is, that the clamp is only clumsy if it is clumsily used. If I attempt to put it on a stump as big as my thigh, I will confess that it is clumsy, and that I am clumsier. If I succeed in bringing my stump down to the size of my wrist, then down to the size of my two fingers, it no longer appears as the clumsy instrument that is barbarous and unscientific, no more than is the ligature around a large ovarian pedicle. The matter is, that to make the stump in hysterectomy is the foundation of success in the operation, and that if this is not as it should be, no manner of operation can be successful. Right here come in the dangers so often brought forward to discourage the extra-peritoneal treatment of the stump—to wit, hernia and drag. If the stump is brought down, as it is always possible to bring it down, the danger from hernia need be no greater than in any other abdominal operation, and the drag is not to be feared.

The justifiability of the operation is now less questioned than formerly among those best qualified to speak authoritatively. This is true, first, because the operation and its technique is better understood and performed than it was formerly; and, second, because in the pathology of these tumors, for some reason, there has been a change for the worse. Formerly the fibroid was for the most part the thing feared, together with its concomitants of pressure and adhesions. To these there must now be added the increased danger of malignant degeneration. Why this should be I do not know. I only know that in my experience it is so; and this being the fact, it remains to insist that a still greater reason for operation exists than if the simple fibroid alone was to be considered. It

used to be the fashion to measure the danger of any tumor by its size. Now we know better. If only size were to be considered, some of the most pernicious growths would be allowed to remain, and many lives accordingly would be lost. Small tumors are just as dangerous as large ones in a majority of cases. In the first place, if they are left alone they often become big; and, in the second place, the shape of the tumor often does more to determine its dangerousness than mere size. In fibroid tumors of the uterus the fantastic feature in shape is often present, and the irregularity of contour may cause comparatively a small tumor to encroach in this direction and that upon organs which, if it were symmetrical, would not be interfered with at all. Shape, then, is a great determining feature in the ease or difficulty with which a fibroid growth may be removed. If it is irregular, its irregularity will give less trouble when it is small than when its size is considerable. In addition to this, it is a feature that runs into time and extent of operation.

It is rather surprising now to note the frequency with which fibroid tumors occur, and those, too, of a dangerous type. These growths were formerly thought most common in colored women, but this is not true. Mr. Tait says that in the blacks of Africa fibroids are unknown. Black women more frequently are found in our dispensary service, coming to be treated for these tumors; but it is surprising how many of these tumors are found among the better classes, where for a long time the woman will suffer in silence, and finally only disclose her trouble after the growth is considerable. Here, too, the tumor itself often is not regarded, but the mischief it has caused. Edema, pain, pressure upon the bladder or intestines or upon the diaphragm, may have rendered, alone or together, life miserable, and the poor sufferer is no longer able to hide her pain and discomfort. What I wish here to insist upon again with renewed emphasis is that in this respect—*i.e*, so far as causing complications is concerned—the small tumor is just as apt to figure as a determining factor as the large. If the tumor is a regular symmetrical one, the complications are apt to come on late; if it is small and nodular, irregularly filling up the pelvis and abdomen, the complications grow apace with its irregularity and the bias of its nodosities, and there is no saying when the symptoms suddenly may become urgent.

It is in these smaller tumors that we most frequently have advised the let-alone plan. In this connection, however, we are to remember that these growths are most intolerant of irritation of all kinds, and that, therefore, there is reason to avoid even the so-called harmless electrical puncture. Puncture is capable of causing excessive irritation, the irritation in its turn gives rise to adhesions, and these always increase the complications and difficulties of any operation. These statements of mine, in reference especially to the electrical treatment as increasing the difficulties of tumors afterward to be operated on, have given rise to a great deal of discussion, doubt, and acrimony. My opinion, however, is unchanged from a surgical standpoint, for the simple reason that in a given number of cases in which there has been no other interference than that of operation, the conditions have been found to be the simplest—I mean so far as complications are concerned—while in another series where persistent electrical application had been persevered in for some time, the complications have, in all instances, been exaggerated. Certainly, when this history repeats itself almost invariably, it is at least a justification of the ground I hold.

If this is not so, some other reason equally plausible must be advanced to take its place. The complications found in relation with all fibroids render their treatment by any exploratory mechanical means extremely pernicious, so far as safety is concerned; and so, also, to the operator, so far as his success is concerned. More than once what has been considered a simple cystoma has turned out to be a fibroma which has undergone cystomatous degeneration. Hence it appears that simple puncture, as a preparatory treatment of a supposed cystoma, is not a simple procedure in the light of this difficulty of diagnosis, apart from all other considerations. I have known an operator to start out with the idea of removing an ovarian cyst, make his incision, plunge in his trocar, and almost at once have the consciousness of meeting his Waterloo—temporarily, at least; for he had to allow his patient to come partially out of the ether, while he hurriedly, being without a nœud, had to seek a rubber ligature to secure the stump. This experience is still vividly before me, and is recorded here, not to note the failure of any single man, but to insist that, in this operation as in all abdominal work, we are to be ready for any emergency that may come; and here emergency is the rule. Combined hard and soft tumors are by no means

rare. They are apt to give rise to a good deal of difficulty in diagnosis. Fluctuation may not be present in the fluid portion, but only a peculiar resiliency, while the hard mass in connection with the elastic one may simulate to some extent a pregnancy. Indeed, here we come to a real condition, not a theory. In many cases where the Porro operation is indicated, this is the very state of things found. We have a hard tumor or a number of them blocking up the pelvis or extending above the pelvic brim, thus interfering with the delivery of the child. If the woman has gone on to quickening the complication can be readily recognized; but if in the early months, or with a dead fetus, we are put to our wits' end to explain the situation, especially if the tumor has been of rapid growth, concomitant with pregnancy, and never before noticed. In such cases the minutest history must be gotten, and this, in connection with all subjective and objective signs, helps us to a diagnosis.

One of the most common complications to be expected with fibroid growths is the dermoid cyst. This peculiar tumor is always an unpleasant complication of any condition alongside of which it may be found. It is uncertain in its nature, painful in character, apt to be complicated in its adhesions; its contents irritating, sometimes offensive; when this is the case the utmost caution must be used to avoid infection. Tubal disease in the presence of fibroids is most common. This is to be taken into consideration when it is argued that a fibroid can be treated *per se* without resort to surgery. Now, in relation with all fibroids, identical tubal disease does not occur. There may be simple inflammatory disease, or there may be hydrosalpinx, or there may be a true pus tube, or a combination of any two of these. What we are to remember—and this cannot be too strongly insisted upon—is that the danger of the existing complications may be paramount, in its way, to the danger of the fibroid itself. None of these tubal adhesions, with all that this implies, are remediable save by direct interference, as the surgeon finds them. As to what the theorist has to say about them I do not much care. I have, at the operating table, too often asked the question, Would this be relieved by treatment, or that benefited by rest, or by massage, or electricity, or by any other means known outside the pale of surgery?—asked the question, I repeat, in just those cases in which it is the fashion to preach conservatism and

disparage surgery, with the reply: "Certainly not; in such cases it would not apply." Too little experience is almost as bad as no experience; for the operator that begins in ignorance of the work of those who built their faith upon long watching, careful study, and infinite painstaking, must only build up a creed to abandon it when he finds himself driven to the wall by ignorant surgery, which is always bad surgery. All fibroid growths are to be watched carefully for malignancy. This is not to be lost sight of under any circumstances. If we attempt to lull ourselves into repose by imagining a tumor entirely benign, we shall often be deceived in the sequence. Another complication of the fibroid is the irreducible ovarian cyst. Here we may infer that the two masses are one, and, if the error is not early corrected, we shall have the serious error before us of attempting to include an ovarian cyst and a fibroid tumor in one nœud. I have in mind a neophyte who, after seeing a fibroid removed by the extra-peritoneal method, a day after followed the same technique with an ovarian cyst! Such is the demonstration of surgery to too many lookers-on.

Another altogether different condition, which may puzzle the acutest diagnostician, is a tumor of the kidney crowding itself down upon the uterus. Here the commonest manifestations of fibroid tumor of the uterus are present—edema, emaciation, irregular bleeding from the weakened condition of the patient. The uterus cannot be separated from the tumor, and on combined palpation resists and falls with it. In such a condition it is easy to see how any lack of surgical resource is fatal to both patient and operator, and how different is the condition to be dealt with from what has been anticipated. Bearing in mind the rapidity with which some forms of myomata develop, it is again evident that a thick-walled ectopic sac may simulate one of these tumors. I have in mind one of my own cases, in which everything in the history pointed to a fibroid tumor. I opened the abdomen, discovered the tumor, plunged in the trocar, only to find that an ectopic fetus, nearly at term, could not be run through a canula, and at once delivered—one of the most difficult ectopic sacs I have ever dealt with. Under the same head it may be worth while to hold in mind that after a fetus has died in ectopic pregnancy, when the sac envelops the uterus and it is no longer possible to get delicate tactile effects on account of the absorption of the fluids, a fibroid

may be thought present when in no wise accountable for the condition.

Finally, when we have had chronic recurring attacks of peritonitis, when all the pelvic contents are fused together on account of these attacks, there may be great difficulty in differentiating the parts in order to tell what part or organ is accountable for the symptoms as they express themselves to our examining sense.

From the multiplicity and variety of the complications here referred to, it will at once be seen that all cases require the most careful sequential history, more than an ordinary study of the objective and subjective phenomena, by which, by exclusion, the least likely disease may be set aside, while the more probable phase of disease is concluded by differentiation and exclusion, if there is an absence of positive symptomatology. The features here indicated render it apparent that every surgeon bold enough to attempt to remove a fibroid uterus ought also to be ready to attack any condition known to surgery.

Having looked at the diagnosis of the condition, it remains still to consider the method of operating for their removal. As I have already said, there has not been, and there is not yet, a consensus of opinion in reference to the best method of removing these growths. The objections to the clamp—the instrument that has given us the best results—are, I consider, puerile. The ideal method is that which gives the best results, aside from the inherent beauty of its conception and execution.

Of the many operations and modifications proposed for the removal of the fibroid uterus, there is little need of here considering but three—to wit, the operation by the clamp or serre-nœud; the operation for the removal of the entire uterus; and that of stitching the peritoneum across from side to side, leaving the cervix open in order to allow the escape of pus and ligatures in a few days. Of this latter operation it is only fair to say that the results have been apparently good; but that it is good surgery, or more ideal than the use of the clamp, to do an operation with the expectation of pus to escape from the vagina, is not at all to my understanding. A word, also, as to the originality and novelty of the method. It is the same one exactly proposed four years ago, at the meeting of the American Medical Association held at New-

port, by Dr. Dudley, of New York. Byford's method of making vaginal fixation of the stump, although recommended by this careful surgeon, I do not think will ever come into general use, first, because it is not so easy as the clamp, and certainly is not safer. The entire removal of the uterus is an operation that takes away the keystone of the arch from the vaginal vault, and is in this particular a faulty operation. The procedure is not a difficult one, but I do not prefer it for anatomical reasons. In my own work I have almost entirely used the clamp, or, more properly speaking, the nœud. I like it because I get results that are nearly perfect. I like the clamp because it gives absolute control over the stump. There is no danger of its slipping, for by the aid of the pins the possibility of this accident is precluded. Moreover, the nœud—and I shall use these terms interchangeably, as may happen—is rapid as compared with sewing the stump by using a temporary clamp, and with it there is no need of wasting time with uterine or ovarian arteries, for of itself, when correctly applied, it controls both these as well as the stump.

The pedicle or stump in these cases is the keystone of the whole operation. To this I briefly referred in the beginning of this paper. The objections as to dragging and the size of the stump ought no longer to obtain, for when a pedicle is well made and brought down to a proper size, there is no difficulty as to its disposition and drag.

The following comparative statistics have kindly been furnished me by my friend, Dr. R. P. Harris (August 29, 1892):

Porro operations in United States since April 1, 1880 (all)	23
Patients recovered	13
Patients died	11
Children living	14
Children dead	9
Since January 1, 1890	11
Cases recovered	9
Children living	7

Improved Cesarean operations since October 6, 1882 (all)	65
Patients recovered	38
Patients died	27
Children living	56
Children dead	9
Since January 1, 1890	27
Patients recovered	21
Patients died	6
Children living	25
Children dead	2

Statistics of Abdominal Hysterectomy.

Operators.	Cases.	Deaths.	Per cent.	Methods.
German Operators.				
R. Chrobak, Vienna	55	5	9	Extra-peritoneal.
	4	0	0	Total extirpation, abdominal.
	13	0	0	Retro-peritoneal fixation of stump.
P. Zweifel, Leipzig	50	6	12	Intra-peritoneal, own method.
S. Ascher, Hamburg	10	4	40	" "
	5	2	40	Extra-peritoneal.
Kaltenbach, Halle	8	3	37	Intra-peritoneal.
	22	1	4.5	Extra-peritoneal, Hegar's method.
Hegar, Freiburg	31	10	32	" "
Leopold, Dresden	22	5	22.7	Intra-peritoneal.
	34	7	20	Extra-peritoneal.
Schröder	164	49	29	Intra-peritoneal.
A. Martin, Berlin	135	46	34	" "
Brennecke	22	1	4.5	" " Schröder's method.
R. Dick	11	2	22.2	" " " "
E. Albert, Vienna	50	3	6	Extra-peritoneal and total extirpation (he does not give the individual numbers for each method).
H. Fritsch, Breslau	27	11	40.7	Intra-peritoneal.
	33	5	15.3	Extra-peritoneal.
French Operators.				
Terrillon, Paris	26	3	11	Extra-peritoneal.
	32	3	9.3	Intra-peritoneal.
Em. Lauwers	3	2	66	" "
	13	0	0	Extra-peritoneal.
English and American Operators.				
Thomas Keith, England	38	2	5.2	
Lawson Tait, "	88	10	11.3	Extra-peritoneal.
G. G. Bantock, "	56	19	16	" "
Spencer Wells, "	20	10	50	" "
	26	10	38	Intra-peritoneal.
Thornton, "	54	20	37	Extra-peritoneal.
Jos. Price, Philadelphia[1]	91	6	6	" "
	2	0	0	Total extirpation.
H. T. Byford, Chicago	4	0	0	Ventral fixation.
	17	4	23	Vaginal "
E. W. Cushing, Boston	25	5	20	Extra-peritoneal.
	3	3	100	Intra-peritoneal.
H. J. Boldt, New York	6	2	33	Extra-peritoneal.
	7	2	28	Combined laparo-vaginal.
	3	0	0	Intra-peritoneal.
	9	2	22	Abdominal total extirpation.
J. C. Irish, Lowell, Mass.	19	5	26.3	Extra-peritoneal.
M. D. Mann, Buffalo	12	1	8.3	" "
P. F. Mundé, New York	12	4	33	" "

[1] Including 6 puerperal hysterectomies, or Porro operations; 6 recoveries.

POSTURE IN RELATION TO OBSTETRICS AND GYNECOLOGY.

By WILLIAM WARREN POTTER, M.D.,
BUFFALO.

INTRODUCTION.

Though there may be little that is novel or striking in reference to posture that I may introduce to this audience, I shall yet endeavor to bring together certain salient features relating to this important question, with a view to make them easily accessible to the searcher for information on the subject. Most of the literature relating to posture is scattered here and there through text-books that only daintily refer to it, or else in journals that an index-catalogue of several quarto volumes is required to make available. If the question should be raised as to the propriety of taking up the time of a learned body like this with such an elementary subject as posture, an answer may be found in part in the foregoing fact, and in other part in the suggestion that it is sometimes well to review elementary principles in order to gather up whatever useful information may have developed since a previous rehearsal, that it may be added to the sum-total of knowledge on any subject under consideration.

It is now a recognized fact, though one for many years overlooked, that posture exercises no small degree of influence in the causation, aggravation, and perpetuation of pelvic disease. There appears to be no good reason why the aid of posture should not be invoked in the cure of maladies which it has played an important part either in producing, exaggerating, or maintaining. Indeed, this principle is well understood and has been amply carried out in practice by many physicians. The law of gravity prevails everywhere alike in nature, and the fluids as well as the solids of the body must obey the same decrees that govern the outside world. The

reproductive organs of women are so generously supplied with bloodvessels that they are peculiarly susceptible to the influences of gravity; it is so in health, and it is even doubly so in disease, when the pelvic organs are increased in bulk or changed in structure, form, or location. Hence, it is with some earnestness that this subject is urged upon the attention of the Association at this time, for I am convinced that many of its bearings are either indifferently understood, inadequately appreciated, or neglected altogether.

In the pursuit of this subject I have found it somewhat difficult to illustrate the various postures without employing a nude model, since any drapery obscures many important details that ought not to be omitted. One can easily demonstrate the essential factors of posture clinically with a draped figure, but when an attempt is made to reproduce all its various details in a picture, the artist is embarrassed in the truthful portrayal of the subject by the drapery; hence I shall show you in the course of this dissertation a number of illustrations taken from a nude model.

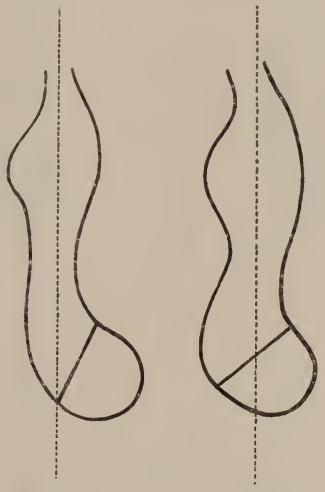
THE ERECT POSTURE.

A distinguishing characteristic of the human species abides in the fact that it assumes the erect posture, instead of the crawling or horizontal all-fours of the brute animal kingdom. This is one of the most important postures with which we have to deal, since it is one so deeply involved in the etiology of pelvic disease. It is the posture of good health, and it is likewise the posture of pernicious disease, the difference only lying between its correct and incorrect assumption and maintenance. The erect posture correctly assumed and habitually maintained means a strong foundation for good health in a woman from youth to age; it means more than can be told in a single paper of the limit ordinarily allowed in this Association; and it means particularly that physicians should pay great attention—more attention, I am sorry to say, than they usually do—toward encouraging the maintenance of the correctly assumed erect posture, either as a preventive or a curative measure.

The striking features of this posture are not as easily shown, either in its correct or incorrect poses, by photographic reproductions as are the others, hence I resort to schematic diagrams to illustrate its chief points. The first I exhibit are two diagrams

taken from Aveling's treatise on posture,[1] that serve to illustrate the difference in the gravity line in the erect and slightly stooping poses.

These diagrams point a lesson which is told at a single glance. It will be observed that the gravity pressure in Fig. 2 is greatest near the centre of the pelvic plane, hence it must necessarily crowd downward the organs, tissues, and bloodvessels that are chiefly concerned in the maintenance of a woman's health and characteristics; whereas in the correctly assumed erect posture it impinges near the symphysis pubis, as shown in Fig. 1, yet the difference between the two figures is very slight.



(Modified from Aveling.)

The pernicious effect of pressure on the abdominal and pelvic viscera, however, is more accentuated in Fig. 4, which is drawn to illustrate the gravity pressure on a retroverted womb, which in turn should be contrasted with Fig. 3, that of a healthful woman in the correctly assumed erect attitude. Figs. 3 and 4 are modified from drawings made by Dr. W. B. Dewees, illustrating a paper on "External Support in Gynecology," presented by him to the Inter-

[1] The Influence of Posture on Women in Gynecic and Obstetric Practice. By J. H. Aveling. Philadelphia: Lindsay & Blakiston, 1878.

national Congress of Gynecology held in Brussels, Sept., 1892, and which he has kindly permitted me to use. They are slightly disproportionate as to the length of the lower extremities, but this is immaterial for the purpose in view. It will be observed in Fig. 3 that the occiput and the heels, *B B*, are on a line; that the nose, groin,

Fig. 3.

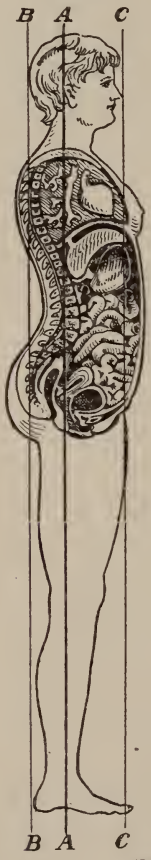
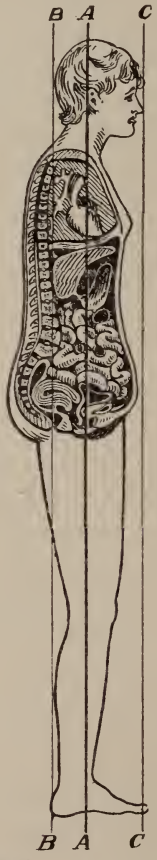


Fig. 4.



(Modified from Dewees.)

and great toes, *C C*, also are at the same perpendicular; and it may be added that the slightly flexed elbows, always pertaining to the correctly assumed erect posture, could they be shown, would rest at the same perpendicular. It is my constant habit to instruct women who consult me to assume this posture several times during the day, placing the heels against a door or other perpendicular, and stand-

ing so that the occiput, elbows, buttocks, and heels touch the same perpendicular line. This will aid in establishing a custom of correctness where the figure has become slightly bowed from habit. The practice of light gymnastics, too, under the eye of a competent teacher, is a supplementary aid of great value to the gynecological management of many of these cases.

If it be true that a considerable proportion of pelvic inflammations are of a nature, either because of their origin or destructive tendency, to require abdominal section for their cure, there is still a goodly number, benign in character and less destructive in their course, that may be cured by less formidable treatment, or even prevented altogether if proper attention is paid to posture, hygiene, dress, and food. We have only to bear in mind the complex nature of the supply of blood to the pelvic structures to better appreciate the influence of posture on the sexual organs. The bloodvessels and nerves are so interwoven and doubled upon themselves that in attempting to trace them one becomes almost lost in the mazy labyrinth of vessel and fibre, so intricate is the network of connective tissue, vein, artery, and nerve.

The nidus of pelvic inflammation may be, and oftentimes is, a mere trifle—possibly a slight irritation arising from that unknown quantity which we so succinctly formulate in the expression "taking cold." This, in a patient prone to menstrual disturbances, may be all-sufficient to provoke serious and prolonged pelvic disease. I am now referring, of course, to those inflammatory processes which arise independently of infection, either traumatic, puerperal, or specific. Whatever the cause of the irritation may be, the first pathological manifestation is hyper-vascularity—hyperemia. This hyperemia causes arterial tension, which in turn increases blood pressure, and this soon carries the organs to the stage of congestion. Congestion creates an exaltation of nervous force, when we may observe the resultant nerve turmoil; and this phenomenon produces dilatation of the arterioles, which in turn brings the structures involved to the point of inflammation. With the inflammatory process fully inaugurated, the veins at once become unable to return the increased quantity of blood sent to the parts, and we find true blood stasis established. In the class of inflammations, now under consideration, those that usually fail to end in suppuration but turn themselves toward resolution, we find it very easy for Nature to

establish subinvolution, which means chronic blood stasis. The law of gravity now acting, as I have just pointed out, upon these over-distended vessels, serves to keep up the disease and its resultant reflexes, unless arrested by proper management, for an almost indefinite period. Hence, it becomes of the highest importance to thoroughly understand the physics of posture and to apply this knowledge to the relief of patients who suffer from blood stasis.

Fig. 5.

Correct.

Fig. 6.

Incorrect.

It is not difficult to point out the woman in the street or social throng who is apparently free from pelvic disease, and it is quite as easy to differentiate those who are less fortunate in this respect. By careful observation of the erect posture in profile, it is comparatively simple to note the difference between those who correctly and incorrectly assume it; and, in general, it may be affirmed that a woman who stoops is farther from the health line than one who stands, walks, or sits in the correctly assumed erect posture. The healthy woman easily and readily takes this posture on any and all occasions without effort and without thought; it is, indeed, naturally, therefore easily and gracefully, assumed. On the other hand,

the woman with pelvic disease in sitting, standing, or walking, stoops, bends forward, or shambles in a manner devoid of ease and grace, not only painful to witness, but, withal, betraying her sexual ill-health and the torture of body and mind that the effort to correct, even temporarily while in the drawing-room, the faults of posture subject her to.

The drawings, Figs. 5 and 6, further illustrate the differences between the correct and faulty erect posture.

If, however, the imperfect erect posture is easy of detection, and its baneful influences are correspondingly simple to demonstrate,

Fig. 7.

The faulty sitting posture. (Dickinson.)

not so with reference to its correction. Many difficulties lie across our path when we attempt to establish the habit of properly sitting or standing erect, in a woman who has become round-shouldered and stooping through the maintenance for many years of these evil practices. Occupation, dress, food, and impure air all play an important part in keeping alive these faults of posture. The seamstress, shop-girl, sewing-machine operator, and various other classes of women engaged in sedentary work of the so-called lighter order, become easy victims of those pelvic disorders that are entailed or aggravated by their methods and habits of life. They stand during long hours without rest, or sit in a cramped and stooping attitude (see Fig. 7) that overloads the pelvic organs with blood, and displaces, overlaps, crowds, or otherwise disturbs their normal place, size, or function. Dr. R. L. Dickinson, of Brooklyn, in an article on

"Diseases of the Uterus" published in Hare's *System of Therapeutics*, vol. iii., has discoursed upon the evils of fashionable dress in a comprehensive and forcible manner. I am indebted both to the author and the publishers, Messrs. Lea Brothers & Co., for the illustration—Fig. 7—of a girl bending forward at work. It admirably delineates a point that I desire to accentuate. The pelvic organs, it will be observed, are crowded downward into the pelvic cavity until they rest heavily on its floor, while they are overlapping and otherwise making sorry attempts at accommodating themselves to inadequate space. The direful influence of the corset, and the evils resultant from wearing ill-fitting shoes with high heels, need not be enlarged upon at this time. I cannot, however, let this opportunity pass, because it is pertinent to the subject, without pausing to remark that dressmakers, modistes, and corset-makers are most dangerous enemies of woman, for the reason that they insidiously betray her into the habit of wearing tight-fitting clothing that is not only pernicious in its effects, but delays or thwarts all attempts at cure. It is the constant habit of dressmakers to persuade their customers to let them make their dress-waists "a little tighter here, or snugger there," until at last they find themselves, sometimes against their will, incased in garments that impede circulation and imprison the abdominal and pelvic organs beyond all hope of deliverance. So, too, with regard to foul air and imperfect nutrition. Many of these women spend their days in shops, offices, or rooms in which perfect oxygenation is unknown, only to return to their homes and sleeping-apartments where the air is still worse; while to good appetites, wholesome food, and perfect digestion they are either casual acquaintances or total strangers. Hence it is not singular that systemic faults are established which serve to increase the postural errors, and thus we have a complex interplay of cause and effect that is as difficult to differentiate as to remove. Fig. 6 illustrates this point.

But the erect posture has some importance with reference to obstetrics and gynecology other than to produce or cure disease. In the obstetrical field it becomes of aid in the diagnosis of pregnancy during its earlier months, and is chiefly concerned in this regard with reference to the employment of ballottement. An analogous use of this posture in the diagnosis of pelvic disease makes it sometimes useful with reference to the differentiation of

tumors, cystic and solid; and it becomes available, also, in the diagnosis of uterine displacements. The methods of using the erect posture for diagnosis will at once suggest themselves to the expert, and need not be enumerated in detail. My purpose is simply to call renewed attention to the fact that it may be of vast use in the management of both obstetrical and gynecological patients, if it is properly employed.

THE HORIZONTAL POSTURE.

The next posture in the natural order of sequence, the antipode of the erect, is the horizontal recumbent posture. The chief obstetric use of this posture may be described in a word—namely, for the employment of palpation. Since the diagnosis of pregnancy is largely made by the touch, and since the position of the fetus in the advanced months of gestation can almost invariably be ascertained by palpating the abdomen, the horizontal posture may be fairly placed among the obstetric positions. In it especially the fetal heart can be best heard and differentiated.

Its gynecological advantages are also related to the diagnosis of abdominal diseases and growths, and particularly is it of importance with reference to the diagnosis of appendicitis, as well as all inflammatory deposits in and about the head of the colon. It is the posture, *par excellence*, for the employment of palpation, with the lower extremities either extended or flexed. The abdominal surgeon has occasion to use it habitually, as it is the posture of operative procedure in nearly all his work. I have illustrated the horizontal posture (Fig. 8) for the purpose of showing its proper maintenance as well as its contrast to the erect posture, and also to bring the anatomical landmarks prominently into the mental field. In this figure we discover the abdominal boundaries strongly marked, such as the lower margin of the ribs, the umbilicus, the processes of the iliac spines, and the symphysis pubis.

THE DORSAL POSTURE.

The dorsal posture naturally comes next to the horizontal for consideration, and is really only a modification of it. It may be divided into the dorsal recumbent, the dorsal elevated, and the dorso-sacral postures.

The dorsal postures with the extremities moderately flexed are used in various obstetrical and gynecological procedures; they only need enumerating to suggest their value and importance. In some countries it is the habit to confine a woman in the dorsal posture, which under certain conditions possesses some advantages. It is, however, one of discomfort to the accoucheur, and is more provocative of genital lacerations than the left lateral position, which is generally chosen for delivery in this country. During the first stage of labor, however, it may be permitted with some degree of propriety, as also the erect posture may be allowed during this stage, for they both prove restful to the woman, and present an opportunity for the law of gravitation to act in promoting dilatation of the maternal parts. This and the erect postures may still further be permitted under watchful care during the first half of the second stage of labor in primiparæ, or other appropriate cases. The dorsal is, furthermore, the posture, in some of its modifications, for the application of the obstetric forceps and for the repair of such lesions as may have occurred during the process of parturition.

Its gynecological importance is great. It affords the most perfect opportunity for digital investigation of the accessible portion of the genital tract, and it also permits the most complete employment of bimanual palpation. In gynecological diagnosis, however, it will often be found a valuable aid to elevate the patient at an angle of thirty degrees or more (Fig. 10), as affording a more thorough opportunity for the digital exploration of the genital tract and the further employment of the bimanual. These four figures (9, 10, 11, and 12) will illustrate the dorsal posture with views in its several modifications.

The dorso-sacral posture is the posture of gynecological operations upon the genital tract. Perineal lacerations are readily inspected and repaired in this posture, as well as some other lesions not necessary to enumerate now. It is the posture to be chosen for the performance of vaginal hysterectomy, and is generally known and described by surgeons under the head of the lithotomy position.

Finally, the dorsal position is employed in the diagnosis and treatment of diseases of the urethra and bladder in the majority of cases other than those requiring surgery.

THE GENU-PECTORAL POSTURE.

The genu-pectoral posture is a posture of great capabilities in reference to the management of diseases of women, and it is likewise capable of many applications in the field of obstetrics. In the latter we often find it of use in replacing a prolapsed funis; it also aids in unshipping an impacted head, and it has been resorted to with avail in the management of transverse presentations where other postures had brought only failure.[1] I have been informed by a professional friend that he has even been able to apply the forceps successfully in the genu-pectoral posture, after failure in the usual forceps position. It will sometimes become of avail when the catheter is required, after descent of the head and imprisonment of the urethra.

In gynecology we find it of great usefulness in replacing a retroverted uterus or a prolapsed ovary. The influence of gravity in adding to or increasing the degree of retroversion is very great. Hence, by a reversal of gravity, we may invoke its law in overcoming the conditions that it has contributed to produce. With a woman properly placed in the genu-pectoral position, a dislocated uterus will oftentimes, unaided, gravitate to its proper level. In other cases it will require some little *vis a tergo* applied by the examining finger or fingers, and in still others slight pressure made with a cotton-mounted probe or other suitable instrument will succeed in carrying it to its place. Having accomplished this, the problem of holding it there is often presented to the gynecologist. In a suitable case without adhesions, and after adequate preparatory treatment, a pessary will often accomplish the desired result. I make the assertion, and I affirm it with all the cogent force of speech, that if a pessary becomes necessary there is really no other position so capable of affording to it all its advantages, that so facilitates its introduction, and that gives a woman so little discomfort in its application, as the genu-pectoral posture. Moreover, it is competent to direct a patient wearing a pessary to assume this posture at intervals during each day, for the purpose of unshipping impaction and relieving any intra-pelvic pressure that may result, and to unload the vessels from the over-distention and fulness that gravitation has caused.

[1] Barnum: Buffalo Medical and Surgical Journal, Jan. 1892, p. 385.

This is the posture that enabled the immortal Sims to develop his operation for vesico-vaginal fistula, and it led to his discovery of the modification of this pose, now known as the semi-prone, or Sims's posture. It is not easy to forget Sims's graphic description of his accidental rediscovery of the principles that have served to make the genu-pectoral posture so valuable in the field of gynecology. I may be pardoned for a brief reference to this most interesting chapter in medical history. In the summer of 1845, a woman riding in the suburbs of Montgomery, Ala., where Dr. Sims then resided, was thrown from her horse, and suffered a sudden, acute dislocation of the uterus. In great pain she was taken to a near residence and Dr. Sims was summoned. He tried in various ways to relieve her without avail, but finally placed her in the knee-chest posture, and introduced two fingers into the vagina. In a moment her pain departed, and she exclaimed, "I am relieved." While studying over the problem as to how this had been accomplished, his patient threw herself down upon her side, when a sudden, loud escapement of air from the vagina told the story. The organ had gravitated toward the epigastrium, and atmospheric air had filled the vagina, distending it like a balloon. It came out with an explosive sound on the change of position, and thus the mystery was solved. The dislocated uterus had been reduced by the conjunction of the two forces—gravitation and air-pressure. Dr. Sims readily applied this phenomenon to the treatment of several cases of vesico-vaginal fistula—an accident of parturition theretofore incurable. He saw, what no man had ever seen before, the interior of the vagina, with the fistulæ *in situ*, and was thus enabled, after a prolonged struggle in perfecting his technique, to cure all his cases. This was the turning-point in the history of gynecology; an epoch was marked. The gynecological universe there and then changed front, and the modern school of gynecology was established in that humble, inconspicuous dwelling.

The late Dr. Henry F. Campbell, of Augusta, Ga., has written voluminously upon the physics of this posture and its application to the treatment of pelvic disease. My experience with it only confirms to a considerable extent the observations of Dr. Campbell. Bozeman, of New York, still prefers the genu-pectoral, or rather his modification of it, for fistulæ operations, in which he has

attained conspicuous success by the employment of his button suture adjusted in this posture. I speak from a large experience in the management of pelvic diseases when I say that—leaving out, of course, all operative cases—I should be compelled substantially to abandon the practice of gynecology if I was to be deprived of the benefits of the genu-pectoral posture. Another advantage connected with this posture resides in the fact that the intestinal canal can be inflated or flushed better with a patient in this attitude, in which the long rectal tube can be passed with more convenience and less discomfort. The knees-elbows posture (Fig. 14), which is only a modification of the genu-pectoral, may be resorted to in cases where it is not competent or possible to employ the classical knee-chest posture.

Let me speak for a moment as to the method of assuming this important pose. To begin with, a table or other firm foundation is necessary. Presuming that a table is used, its top forms the horizontal of a right-angled triangle which is to be completed by the patient's body. In this geometrical figure the thighs furnish the upright and the body the hypothenuse, when we thus have the triangle complete. I lay great stress upon the method of assuming this posture. Failure has over and again come to the novice or amateur who has attempted to place his patient in this posture for obstetrical or gynecological purposes. The triangle figure is the one of greatest import and the easiest remembered. If the thighs are oblique, making the angle either obtuse or acute, gravity will be impeded. Fig. 13 shows a model in the proper genu-pectoral posture. When a woman is properly placed in the genu-pectoral posture, the abdominal organs, especially the intestines, gravitate toward the diaphragm, the vessels unload themselves, and with comparative ease a retroverted womb may be reposited, and the necessary mechanical treatment applied to retain it in position with the least possible discomfort to the patient.

It has been asserted that women will either refuse altogether to take this position, or, having taken it, will not keep it long enough to permit the necessary treatment of their conditions. As yet I have never met such a woman. I am in the habit of using this posture daily, and, after fully explaining it to them so that they understand it, my patients are more than satisfied that it is easy and effective. This is especially the case with women who have

been treated by physicians who do not employ this posture, the contrast in postural ease and facility of treatment being so great as to occasion remark.

THE SEMI-PRONE POSTURE.

It is to the genius of Sims, as I have before hinted, that gynecology owes many of its most substantial improvements. This may be said to apply either to instruments or methods. It has been asserted that it were as well to give up the practice of gynecology as to attempt to do without the Sims posture and the Sims speculum. It certainly is an important pose, both with reference to minor and to operative treatment within the genital tract. But in order to obtain its greatest benefits and its most substantial results, this posture must be properly studied by the physician, and he must acquire dexterity in the several uses of this pose. Strictly speaking, the semi-prone position is not an obstetrical posture, but it is so nearly allied to the left lateral recumbent that it easily becomes blended with it in some obstetrical procedures. It is a suitable posture for all manipulation connected with the curettement of the uterus, whether for retained secundines after abortion or for neoplasms or other abnormal conditions of the endometrium. Some operators, however, prefer the dorsal elevated posture for this operation. It is the essential posture for intra-uterine irrigation after labor, when that procedure becomes necessary. There are very few intra-uterine processes of instrumentation that are not better performed with the patient in the semi-prone pose than in any other. The tamponade of the vagina for uterine hemorrhage can be adequately performed in this position, and it is the principal posture for rectal explorations. The hot rectal lavement administered through the long tube is rendered more efficient, because more certain of its reaching the high portions of the intestines, when administered with the patient either in this attitude or in the genu-pectoral posture.

It has been my experience on one or more occasions that forceps could be applied in the Sims posture after failure in all others. It is a posture that is often misunderstood, because frequently illustrations are misleading. I have endeavored to represent it faithfully in the photographs which I reproduce, though I confess it is not an easy matter to properly pose a patient in this attitude, and then

reproduce it accurately. I first show the posterior semi-prone (Fig. 15), which will accentuate the fact that the right knee and thigh are drawn well above the left, and also that the left arm is released and hangs over the edge of the table, while the patient's chest comes in contact with its top. This is made still plainer, especially as regards the position of the lower extremities, in Fig. 16, which is an anterior view of a model postured precisely as in the previous illustration. Sometimes it is requisite to give the table a tilt after the patient is posed, but I have found this rarely necessary unless the woman possessed some marked anatomical peculiarities.

TRENDELENBURG'S POSTURE.

The Trendelenburg posture has been made use of chiefly by abdominal surgeons, who have been led to believe that the gravitation of the abdominal viscera toward the diaphragm would overcome many difficulties that otherwise frequently occur during the progress of operations. Probably there is no one operative posture that is the subject of more disagreement just now than this. Some operators laud it beyond reason, while others decry it with a wholesale condemnation. It is highly probable that this posture, which means that the patient's body shall recline at an angle of about forty-five degrees (Fig. 17), has some advantages which make it important to consider, and at least to be familiar with; but it is not probable that it will ever supplant the ordinary horizontal pose for the largest number of abdominal sections in the hands of the largest number of operators. In the treatment of incarcerated hernia it may serve a useful purpose, for I have known it to aid in the reduction of hernia, when taxis in the horizontal posture had failed.

The modified Trendelenburg posture, with the entire lower extremities and pelvis elevated at an angle of fifteen to twenty degrees, sometimes is available in producing a reversal of gravity in pelvic disease. I have myself employed it with advantage. It is advocated by Emmet very strongly. I remember a patient that I attended about eight years ago that seemed to be nearly or quite cured from a threatened grave pelvic inflammation by the persistent use of the elevated posture *à la* Trendelenburg modified. Dr. Florian Krug, of New York, has read before this Association a

most excellent paper on Trendelenburg's posture.[1] Dr. Willy Meyer was present at the time, and made a demonstration of the various uses of the pose, all of which has been so recently done that I will not go into further elaboration of this posture now.

But, if I should undertake to describe all the details and uses of the various postures that will suggest themselves to active, energetic practitioners, it would not only consume too much of your valuable time, but it would be wearisome to your patience as well as uncomplimentary to your intelligence. My purpose has been to group the most practical postures, illustrate them intelligently, and discourse upon them as briefly as is consistent with the importance of the subject. I hope I have at least partly succeeded.

DISCUSSION.

Dr. James F. W. Ross, of Toronto.—Mr. President: There are two or three points in connection with this interesting subject upon which I would like to say something, and the first is that I hope Dr. Potter will complete this series of photographs that he has exhibited, for our valuable *Transactions* for another year, showing something that has been omitted in the photographs as presented, and something that has not been presented heretofore to the student of medicine—namely, the appearance of the parts during the time the patient is in the genu-pectoral position and after the air has rushed into the vagina. Such a picture would be a practical demonstration of the value of the posture. Then, again, in Sims's position the same effect could be photographed and its value for vesico-vaginal fistulæ operations demonstrated. If Dr. Potter will take some photographs to illustrate these points they would serve to still further complete his work.

I look upon the subject of posture from two points of view. In the first place, I am not one of those who consider the faulty erect posture as a cause of disease, but rather to be the result of a peculiar systemic condition that may itself aggravate and keep alive the already existing disease. In the second place, I look upon these postures as valuable from a surgical and gynecological point of view. Permit me to speak

[1] Trans. Am. Association of Obstet. and Gynec., 1891, vol. iv. p. 219.

with some detail and in the order presented by the author of the paper. The faulty erect posture I consider to be due to a general relaxation of the parts, a want of tone of the system; and, if a woman suffers from uterine displacement, the great element in the cure of that displacement I consider to be a toning up of the system. If a woman will sit around the house from day to day and take no exercise, all the pessaries in the world will not relieve her reflex nervous symptoms. The tone of the general system, I repeat, must be improved.

As to the corset, it is my practice in making examinations of women to insist on its removal. It is an impossibility to examine the pelvis of a woman properly while she has a corset applied to her body, for it pushes down the bowels. This is easily enough demonstrated, for with the bowels pushed downward a large amount of intestinal flatus is imprisoned between the finger in the vagina and hand outside, hence we are not able to feel the organs as accurately as can be done the moment the corset is removed. This is evidence enough of the fact that the corset produces a certain amount of damage to the pelvic organs. A change takes place in these organs during the semi-prone position. While the patient is in the dorsal position, if I want to replace a retroflexed uterus, I find it almost impossible to do so without the sound, unless the patient is under an anesthetic. The moment the patient is placed in the semi-prone posture the uterus is easily replaced. But when once replaced in the dorsal posture it has not the same tendency to go back into its original position, as it has when replaced with the patient in the semi-prone position.

I would like to say one word of praise for the genu-pectoral position. I have in one case operated for vesico-vaginal fistula in which the woman refused to take chloroform, so I placed her in this position, and it was one of the easiest operations I ever did. It can be done very frequently; you can operate without chloroform or cocaine if the patient is placed in the genu-pectoral position; the pain is slight and leaves the patient soon after the operation. Of the value of Trendelenburg's posture I take an intermediate view. I am sure it has been of the greatest assistance to me. If you have a severe pelvic hemorrhage and place the patient in Trendelenburg's posture you can see the mouths of the bleeding vessels as readily as when you are amputating a leg and have the vessels in the leg before you. For the operation of abdomino-vaginal or complete hysterectomy the Trendelenburg posture is invaluable. The intestines are kept out of the way. I consider that the position is employed much more frequently than is necessary; however, that is just a matter of fancy. If a man

is used to the position, let him employ it. I operate without using it in a great many cases.

Dr. Charles A. L. Reed, of Cincinnati.—I have very little fault to find with Dr. Potter's paper. There is possibly one point that I shall criticise—namely, the failure of the essayist to emphasize the erect posture, particularly in examinations undertaken for the accurate estimation of displacements. When I have examined a patient lying on her back, as I generally do, and I find some evidence of displacement, I repeat that examination with the patient in the erect posture, she having one foot placed on the rung of a chair. In that way I determine with accuracy the degree of the existing displacement. If, for instance, you place a patient in the recumbent position and have a retro-displacement, that displacement is exaggerated by the position of the patient. If an anterior displacement, and the patient is placed in the recumbent position, the uterus naturally in most instances drops back. One can estimate the amount of pressure exercised upon the bladder and posterior structures with very much more accuracy by having the patient on her feet. So forcibly has this impressed me, that I make this method a matter of routine practice in all cases in which I am examining for the accurate estimation of an existing displacement.

Now, with regard to the Trendelenburg posture, permit me to say that Trendelenburg devised this posture for the performance of suprapubic cystotomy, and that it was first applied for intra-pelvic operations, so far as any existing records show, by Dr. Krug, of New York. By this adaptation of the posture his name is justly entitled to be coupled with that of Trendelenburg. In the published reports of my cases I have, therefore, alluded to this as the Trendelenburg-Krug posture. In deep pelvic hemorrhage this posture brings the bleeding-points directly under observation, and so converts a remote territory into a comparatively superficial one. With the question of pelvic hemorrhage there is another element to be considered in the adaptation of this position, and that is we get the benefit of gravity in resisting the cardiac force. This is an element that is well worthy of consideration.

I have had very satisfactory results from treating patients with secondary cystitis, particularly when due to long-existing pressure upon the bladder from an anteriorly displaced uterus. I have a great deal of satisfaction in treating these cases by placing them in the recumbent posture, with the hips elevated, and keeping them in that position for some time.

Just one point in respect to what Dr. Ross said with regard to the faulty erect posture being considered a cause or consequence of intra-pelvic disease. I feel sure that in a majority of instances the faulty erect posture is a consequence rather than a cause of pelvic disease. If we glance at the drawing (Fig. 4) we will discover the uterus pressing down well against the lower plexus of nerves, with all the superimposed viscera assisting to keep it in that position. If now this patient were to assume the correct erect posture, she would increase the tension of the anterior abdominal walls, and to that extent would increase the pressure upon the intestines, uterus, and, finally, upon the sacral nerves, which are already impinged upon to a painful degree by the displaced uterus. Increase of pain would be the result, to avoid which the patient maintains "the faulty erect," or, more properly, the partially stooping posture. If we take the contrary position, one of extreme anterior displacement, we then have to deal with a uterus that is so far displaced that it cannot be replaced by tightening the anterior abdominal wall. The anterior deviation of its axis is so great as to place it beyond and below direct control by the abdominal wall. The pressure, therefore, pushes the uterus still more upon the already irritated bladder. For the purpose of avoiding this pressure, the patient stoops forward and assumes what we are discussing as the faulty erect posture. I had an illustration of the effect which the assumption of the erect posture induced in a patient, who stated that she felt all the time as if she was "too short in front." If she straightened up the pains were increased. I am disposed, for these reasons, to look upon "the faulty erect posture," as we ordinarily meet it, as a consequence rather than a cause of displacements.

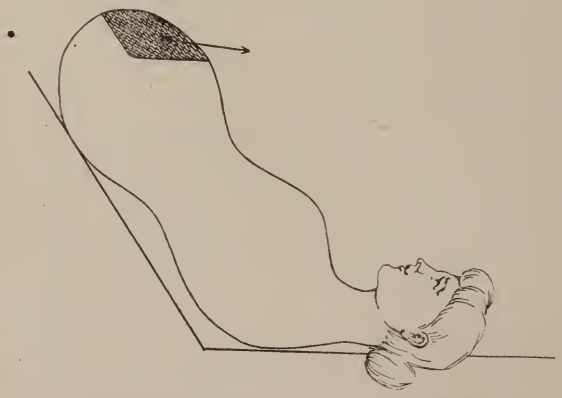
Dr. William H. Taylor, of Cincinnati.—I specially commend the photograph of the genu-pectoral position presented by Dr. Potter. I think it, as shown, is in accordance with the experience of almost any physician who has attempted to teach patients how to assume this position. It is with great difficulty that they are induced to pose with the thighs perfectly perpendicular; almost always the upper ends are farther inclined toward the body than the lower, so that the patient does not get near all the benefits of the genu-pectoral position. With reference to that posture, but especially with reference to Sims's position, a point which the essayist perhaps omitted for want of time, I think both are greatly to be commended in those harassing cases that we see sometimes in consultation, and which the books call "Neglected Shoulder Presentations," where the shoulder has become impacted in the brim of the pelvis. In these, very many have experienced difficulty

in introducing the hand above the brim, seizing the leg and making version. If we have a woman in the Sims position, or supported in the genu-pectoral position, the body of the child may gravitate away so as to draw the shoulder out of the brim; hence we are materially aided, generally speaking, by putting the woman in this position instead of keeping her on her back, as is usually done.

Another point which the essayist did not mention, is the advantage of Sims's position in local treatment of the uterus. Dr. Ross spoke of placing a woman in that position to restore the retroverted uterus, then turning her on her back when introducing a pessary. I am always in the habit of introducing balls of wool or tampons through Sims's speculum with the woman in Sims's position. This, I think, allows greater facility of adjustment, and in almost every case it is a better position for that work than when the woman lies on her back.

Dr. Robert T. Morris, of New York.—I wish that all of the 64,000 physicians in the United States could see the little sketch that I am going to draw upon the blackboard in reference to appendicitis

Fig. 18.



Trendelenburg's posture in appendicitis with abscess.

Shaded part represents walled abscess. Arrow represents natural direction of pus and irrigating fluids through an incision.

cases with abscess. Here is an appendicitis abscess (illustrating), and here is another collection of pus—one of the multiple abscesses. Here are the adherent intestines, and here is the appendix. With a patient lying in Trendelenburg's position, which is illustrated in the drawing, when the abscesses are opened the pus runs out and you are enabled to find all adhesions by sight; also a fixed or gangrenous appendix. Undoubtedly the patient will recover if we simply drain out this pus and

leave the appendix, but the patient will have appendicitis again, and adhesions left will give trouble, perhaps in themselves causing the appendix to swell and choke itself to death. No one can tell when the appendix is going to choke itself to death. In the Trendelenburg position we let out the pus, we wash out with peroxide of hydrogen, we separate adhesions, we remove the appendix, and do all of the work cleanly and accurately by sight. In the old horizontal position, if we open the principal abscess and then separate adhesions, the intestines not only come bulging out, but the pus from the small multiple abscesses, ruptured by the finger, spreads over the abdomen without our knowing it. In Trendelenburg's position the patient's heart is not taxed as it is in the horizontal position, and we do not shock the patient in keeping the intestines forcibly out of our way, for they quietly sink out of the way and do not have to be handled. Solutions which we throw into the cavity run out again by the ordinary law of gravitation, and do not sink down among intestines. Trendelenburg's position, then, is one of the most important of special postures.

Dr. Joseph Hoffman, of Philadelphia.—Dr. Morris has given us, by means of the blackboard, some very good points in reference to adhesions. But suppose these adhesions are friable through long continuance, and that they are almost rotten, as we sometimes find them, putting all the intestines on the strain! This danger, it seems to me, is not an exaggerated one. The simple position of itself would not be without some danger of rupturing a pus sac which otherwise is intact, just as a carriage accident might rupture an abscess in any other place. If this abscess exists, if it be full of pus, if the intestines be rotten, it is idle to say that pus in this position will not infect the general peritoneal cavity. We have fulminant cases of appendicitis, cases in which the pus floods or infects the abdominal cavity, and pus will not travel upward. How does it infect the general peritoneal cavity? If pus will infect the general peritoneal cavity with a man on his feet from sudden rupture, why will it not infect the general peritonéal cavity in Trendelenburg's position? The whole truth of the matter is, that an abscess will open out if it has the direction in its favor; but to say that the Trendelenburg position itself is a cure-all, or that it approximates a cure-all, or renders operations of this sort entirely devoid of danger, is, I think, an exaggeration of the facts.

If we wash out the abdominal cavity after an operation in this position what do we have? I submit that water will not flow out of that incision. If I have my patient in this position (illustrating), washing out the pelvis, I know full well I get water with my irrigator clear to the diaphragm. In cases of ectopic pregnancy I have washed out clots

clear up under the diaphragm, and how, with a patient standing in the position which you see on the board, water will not go to the diaphragm is against everything we know regarding the way fluids gravitate. When we have a man standing on his head, the natural push of the intestines will force the water to go in the direction in which they lie. To invent an operation of this sort for the performance of supra-pubic cystotomy is, I suppose, to bring the bladder up against the pubes. We all know that the bladder itself crowds the pubes, especially if it is full. It is just like inventing a position by putting a man on his abdomen, cutting a hole in the table, and working underneath. Supra-pubic cystotomy in the horizontal posture is one of the simplest and easiest of operations. To require a special position is to require something I know nothing about.

In reference to hysterectomy—and I have seen hysterectomy after hysterectomy—I know full well that if you take a tumor of any size whatever—remember, I am speaking of sizable tumors in the pelvis—the intestines are pushed up as far as you can get them. You may stand a woman on her head and they will not go any farther up. When the tumor is delivered the abdomen can be closed at once, all but the pedicle; hence, it is easy to see the imaginary trouble that comes out of an operation of the sort that has been described.

A word with regard to controlling bleeding-points. How often after removing everything, and you see a bleeding-point in the pelvis, do you put on a ligature, or do you find bleeding from an artery that you want to tie? Not once in fifty times. The more ligatures you put in the pelvis the oftener you will kill your patient. You may resort to pressure or hot water, and that controls it. A week ago I removed a placenta in a case of extra-uterine pregnancy half as big as the crown of a derby hat. The woman was not in the Trendelenburg position; neither was there a ligature in the pelvis.

So far as the positions are concerned, as brought out by Dr. Potter in his paper, I think they are admirable, and, as already expressed, they seem in many respects to give an idea of posture, and of the way posture is made to assume importance in the various operations.

The ideas that Dr. Reed has given us in reference to the examination of patients while on their feet are of importance in some cases. As a routine practice I would not go so far as Dr. Reed has advised. However, each man is entitled to his view on a point upon which he is thoroughly convinced. So far as my own feeling in reference to the Trendelenburg posture is concerned, I will say, not to dispute the honesty or the good reason by which Dr. Morris arrived at his con-

clusions, that in some points, at least, the conclusions are not based on physiological facts.

Dr. Reed.—I would like to ask Dr. Hoffman whether he has ever employed the Trendelenburg posture?

Dr. Hoffman.—I have to some extent, but not in cases of the sort under discussion, because I have never found it necessary.

Dr. Rufus B. Hall, of Cincinnati.—If it had not been for the remarks of Dr. Hoffman I would not have said anything. I will not go over the subject that has been so ably discussed, for, in the main, I approve of the discussion so far. I want, however, to enter my protest against the Trendelenburg posture as advocated by Dr. Morris for the same reasons as those Dr. Hoffman advanced. It has been my custom in operating for abscess to exaggerate the position of the body the other way. Instead of elevating the hips, I put a couple of pillows under the shoulders, and elevate them, as by so doing I would not force more pus into the general peritoneal cavity from gravitation than I could avoid. It is fair to presume in these cases that you are going to open the general peritoneal cavity when you open the appendicitis abscess; then, with the pelvis lower than the shoulders after you have completed your operation and thorough irrigation, as suggested by Dr. Hoffman, you get the results—the recoveries—which are worth more than all the theoretical measures that one could devise. Of course, it is desirable first not to open up a pus cavity into the general peritoneal cavity, but that cannot always be avoided. Irrigation puts the patient in the best position for recovery. I do not agree with Dr. Morris that you can wash out this cavity, and not have the fluid go into the general peritoneal cavity after separating the adhesions. Before I irrigate the cavity, if for any reason I have elevated the patient's hips in the Trendelenburg posture, I would put the patient in the dorsal position, and take the precaution to elevate the shoulders, so as not to diffuse the pus into the peritoneal cavity.

I cannot agree with the last speaker in that the Trendelenburg posture is not a desirable one in many operations in the pelvis. Take, for instance, a case of hysterectomy for a large tumor. In operating with a clamp it is not necessary to elevate the hips, but those of us who have operated by total extirpation of the cervix in these cases, and used the position, I am certain can indorse it most emphatically. As mentioned by Dr. Ross, it puts the field of operation plainly before the operator, so that the broad ligaments can be easily ligated without lengthening the incision, and almost as readily as the vessels in the case of an amputation of the thigh. It is easy of access. I

cannot see why we should not adopt this position in cases of total extirpation. I have done so, and with great advantage, in that it has facilitated my work without making an incision larger than is absolutely necessary to roll out the tumor; then close up the cavity with sponges, and there can be no harm in elevating the patient's hips. For heart-failure or symptoms of heart-failure, if I should meet with such a complication, I would put the patient in the horizontal position, or do whatever suggested itself. All things considered, it gives patients better chances in shortening the operation by adopting this position.

In reference to pus-tube operations, it is not an infrequent thing to have the ligature cut off the specimen, and you have a hemorrhage that is not easily controlled in the horizontal position. In the elevated position you can at once see the bleeding-point or points, and can apply a ligature to the stump or bleeding vessel without difficulty. In those operations I have adopted the position with the greatest satisfaction and advantage. I said to a friend sitting beside me a while ago, that I think so much of the position that I would almost be willing to go out of the work if I could never again employ it.

Dr. Ross.—I crave the indulgence of the Association for one moment. My remarks have been referred to by Dr. Hoffman, and I suppose I have a right to reply to his criticism. I may say that he is totally mistaken regarding his statement of what he said were the facts in connection with the operation of abdomino-vaginal hysterectomy in Trendelenburg's position. We are impeded in the operation by the intestines after the removal of the tumor. Those who have done the total extirpation of the uterus are well aware of this fact. It is very necessary that the intestines should be out of the way, because occasionally we have bleeding from the cut surface of the inter-abdomino-vaginal tissues. I have on one or two occasions been forced to put a ligature on some artery spouting in this tissue. Unless this is done, the patient is liable to bleed to death subsequent to the time that she is put to bed. I do not know what is the matter with the Philadelphia surgeons, but Dr. Hoffman, quoting from Dr. Price, seems to think the Philadelphia or some other surgeons get inside, and sit down to do their work. If Dr. Hoffman will come to Toronto, I will show him that I am not one of those who get inside and sit down to do my work. I try to do my work as rapidly as possible. There is no place in surgery in which the Trendelenburg posture is more valuable than in complete extirpation of the uterus, and it is especially valuable in the extirpation of a small uterus bound down by

adhesions. One word more: Occasionally a man who is not a conservative surgeon, in one sense of the term, will be unable to complete an operation without the Trendelenburg posture, on account of the adhesions. They cannot be controlled short of the ligature, and those that are the deepest and densest cannot be torn through with safety, but must be cut through in many places. I have operated on cases in which I have gone down cutting piece after piece off adhesions, that I could not tear through without interfering with vital structures. On account of the weakness of the woman, I have in several such cases been unable to remove both sides with safety, and have gone back and done the other side at a subsequent operation.

Dr. Edwin Ricketts, of Cincinnati.—I would like to ask the question, Is it possible to put these patients to bed as dry after having used the Trendelenburg posture as it is in the old manner of operating? If such is the case, I have not been able to see it. I have seen a number of operations done in the Trendelenburg position, and when those patients were put to bed, they were in a condition similar to a man that has been pulled out of a river with his clothes on, almost drowned. It does seem to me that this wetting process which accompanies the use of the Trendelenburg position is a serious objection.

Dr. Frank A. Glasgow, of St. Louis.—There is one point in Dr. Potter's paper, viz., where he ascribes congestion and inflammation of the pelvic organs to the stooping posture, which I wish to speak of. In my opinion, entirely too much stress is laid on it as causing congestion and inflammation. He has admitted that the women who assumed this position on account of laborious tasks were not those who were most subject to uterine troubles. This very fact proves, I think, that he is wrong in ascribing so much influence to this posture in causing pelvic disease. These women do have prolapse and its attendant trouble, but they are not so subject to uterine disease as those who take very little active exercise. This, I think, proves that it is not the stooping posture in itself which causes pelvic congestion.

I would not go so far as a gentleman who read a paper before the American Gynecological Society, I believe, who holds that the prone position is the natural (original) posture for women as well as beasts, and that the upright posture is an acquired habit. These are extreme views, and I do not agree with them.

No one can deny that this stooping posture has a bad effect on the pelvic organs. It aids congestion, not through direct action on the circulation, but indirectly through lack of development of the thoracic organs and through pressure on the thoracic venous channels. The

slight difference in the position in which the uterus would lie in this posture and the correct posture, would have little effect on the circulation.

Dr. J. H. Carstens, of Detroit.—I want simply to ask a question. It seems to me that everything has been referred to the standing position of women. I would like to know what the effect is on women who sew and use sewing-machines. If this pressure of the intestines has an effect in displacing the uterus, all the women who sit all day long, who have that pressure of the intestines and congestion of the pelvic organs, ought to have displaced uteri, congestion, and inflammation. I believe, with Dr. Ross, that that position has very little to do with displacement of the uterus. I hardly ever have a case that I cannot trace to some injury. The patient has fallen or has received a sudden jar which is the cause of her displacement. That is the only point I wish to make. I think, with Dr. Ross, that it is some constitutional condition, some little malformation about the pelvis. I think tilting of the pelvis in one woman is different from that in another—that is, the height of the symphysis in reference to the promontory of the sacrum when standing —causing, by such anatomical deviations more or less direct pressure on the pelvic organs.

Dr. L. Ch. Boisliniere, of St. Louis.—Owing to the kindness of the President, I have been invited to make a few remarks upon the able paper of Dr. Potter. The subject of Dr. Potter's paper was "Posture in Relation to Obstetrics and Gynecology." It is a vast subject, and, to condense my ideas on the subject, I will only refer to a few points.

The obstetric position. This, in general, is the dorsal position, as it allows of uterine massage by the Dublin or the Kristelter method, and the expression of the child and placenta. It also guards against the entrance of air into the uterine sinuses—sometimes a cause of sudden death. This position permits the introduction of the hand or forceps in the direction of the axis of the superior strait. If the head of the child is high, the patient should be placed at the very edge of the bed, and the knees kept widely apart by two assistants. If the child's head is at the inferior strait, place the patient also on her back, but not so near the edge of the bed. This position will allow of a more ready delivery of the shoulders, should these be large.

An exception to this method is when, in turning, the back of the child is to the back of the mother, then the lateral position is preferable; it will facilitate the introduction of the hand, as, in this case, the anterior plane of the child being to the mother's abdomen, it is easier

then to enter the uterus in the direction of the axis of the superior strait, and the feet will be easily seized, as they are placed on the anterior plane of the child.

When, in turning, the feet have been brought down, the woman should be replaced on her back, as in this position, by external pressure, the child's head will be kept flexed, its arms folded on its anterior plane, and the after-coming head and placenta may be gently expressed by the Credé or Penrose method during contraction, or the forceps applied. Another exception to the dorsal position is when a labor, too precipitate, has not been checked by an application of the forceps; the woman should then be placed on her side, especially if the pelvis is very large and the child small. This lateral position will then much moderate the uterine contractions, the patient not being able to assist herself so well. But as soon as the presenting part has reached the floor of the pelvis the woman should be replaced on her back.

Presentation of the umbilical cord. Postural replacement of the cord by placing the woman in the knee-and-chest position, as advocated by Drs. Thomas and Papin, succeeds occasionally, but is not to be depended upon. It sometimes succeeds when the cord presents at the superior strait, but always fails when the cord is prolapsed into or out of the vagina. This position, if prolonged, is, moreover, very fatiguing to the woman and hinders labor.

The surest course to follow is to apply the forceps when the head is in the excavation with a prolapsed cord, or version if the head is at or above the brim. This method, in the hands of eminent accoucheurs, has saved fifty-two out of sixty-four children. The other methods of reposition usually fail. If the child is dead, of course nothing is to be done but to deliver it with promptitude.

Posture in gynecology. In retroflexion, the knee-and-chest position will greatly assist in attempts at reposition. Knowing the difficulty and often failures of the ordinary methods, I have devised an instrument for the purpose, known as my rectal repositor. (Here the speaker described his instrument). Even if there should be adhesions, the result of posterior parametritis, I generally succeed by breaking or stretching them by persistent gentle pressure. The woman on her knees and chest, the instrument is introduced into the rectum, guided by two fingers in the vagina, until it passes behind the promontory of the sacrum, and by a gentle leverage movement the fundus is directed forward in the anteversion position, the instrument withdrawn, and an Albert Smith or Thomas pessary inserted before the

woman resumes the lateral position, and a sound introduced to verify the result—generally perfect.

The President.—The excellent paper presented by Dr. Potter has received very thorough discussion by the Fellows, and it is hardly necessary for me to speak at length. I simply desire to make one remark in regard to the dorsal position in some of the operations we do upon the vagina. The table I am using myself—a narrow one—can be converted into the Trendelenburg elevation at any time. Instead of bringing the leg up in this position (illustrating), one can do away with any form of apparatus, by the use of two upright posts, one at each corner of the foot of the table, holding the patient against them. At the same time it exposes the vaginal and abdominal walls. It is so simple that the posts can be attached to any narrow table, and hold the patient in an admirable position.

Dr. Potter (closing the discussion).—This subject has been so admirably discussed from its several points of view that I trust you will pardon me if I say but few words in conclusion.

Dr. Ross was kind enough to suggest that I might have been more accurate, or might have more nearly perfected some of the illustrations of posture. He has shown it to be desirable to have the Sims position, and perhaps one or two others, elaborated a little more by exhibiting the vagina in a state of dilatation and instrumentation. The difficulties in getting a model adapted to the reproduction of the external details of posture, and at the same time permitting an interior view of the genital tract by means of artificial light and instrumentation, are very great. To accomplish this, two or three models are needful—one that is of good figure and graceful lines to represent the externals, and others that are suited to internal demonstration. But those who are adapted to the work in every particular are not easily secured. I thought, in making this demonstration, it was better to pay special attention to accurate poses, leaving other questions to a more convenient period. I accept the criticism, however, as a fair one, considering the desirability of presenting the subject in its nearest perfection, and shall continue the work on the lines suggested by Dr. Ross, hoping to get some, if not all, of these features of posture ready for presentation at a future meeting.

Dr. Ross also remarked, with reference to replacing retroflexed uteri, that the sound had been useful to him. I wish to say, in reply, that the sound is an instrument I have little or no use for; especially would I not employ it to reposit a retro-displaced uterus. Any man

who will accustom himself to employing the genu-pectoral posture in the treatment of displaced uteri will, I am sure, have no use for the sound in that relation. Having said a good deal on previous occasions in condemnation of the uterine sound, I will not absorb valuable time by speaking further on this branch of the subject at present.

Dr. Reed, using the diagram, Fig. 4, to illustrate, reasons that it would increase the distress resultant from a displaced womb, if the woman, now stooping, should be straightened up and made to assume the correct posture in standing, sitting, or walking. Let the displacement first be corrected, and I cannot believe that Dr. Reed will experience the difficulty he imagines; at all events, I have not found his theory borne out in practice. The contrary is really true. First, replace the dislocated womb, and the proper erect posture becomes of aid in retaining it, and, after she accustoms herself to the change, increases a woman's comfort.

Dr. Reed very properly called attention to a method of utilizing the erect posture for diagnosis which I have not emphasized. I am not familiar with his method, but I shall try to make myself so, for it appears important. On another occasion Dr. Reed[1] has stated, with reference to the diagnosis of intra-pelvic diseases, that "it is not necessary to place the patient in any other than the recumbent posture with the knees flexed. The Sims position may in exceptional cases be found to be of real value; the knee-chest and other postures sometimes effected have never been necessary in my practice." Other men of experience have expressed, either publicly or privately, substantially the same opinion. It is for this reason that I have laid some stress upon those postures, especially the genu-pectoral. I believe it is a posture that has been somewhat abused, either in its neglect or improper use, hence its results have not been as satisfactory in the treatment of pelvic diseases as they ought to have been.

I am thankful to Dr. Taylor for calling attention to the importance of properly posing a woman in order to obtain the greatest advantages of this posture. If the pose is not made correctly, all its possibilities will not become available. A table is essential for its highest benefit, and for that matter a table is superior to any other contrivance for any and all gynecological work. While there are various tables in the market, some of which are made of polished wood in handsome designs, with nickel-plated ornamentations, that have great usefulnesss, yet a plain, ordinary four-legged table will answer every purpose, provided it is of proper height and width; with such a table one may do excel-

[1] Buffalo Medical and Surgical Journal, September, 1892, vol. xxxii., No. 2, p. 83.

lent work. The woman's thighs should be placed perpendicularly to the plane of the table, while her feet should form the hypothenuse of a right-angled triangle. In this position there can be no straining or bearing down, as all voluntary muscular power residing in the abdominal muscles is for the time being *hors de combat*. On separating the labia the air rushes into the empty vagina, the viscera having gravitated toward the epigastrium, and the whole vaginal vault becomes visible at a glance. Can anyone doubt that under conditions like these, diagnosis and, in many instances, treatment is greatly facilitated?

Dr. Glasgow evidently misunderstood me when he quoted me as saying that the faulty erect posture was often assumed by hard-working women—women who wash, scrub, and do other severe manual labor for a living—to their physical detriment or to the provocation of pelvic disease. What I particularly intended to say, and what I now desire to be understood as saying is, that the class of women who often become *habitueés*, so to speak, of the incorrect or faulty erect posture are the women who work hard in one sense but not in another; they are not, as a rule, the women who scrub the floor or do the washing. I agree with Dr. Glasgow that these hard-working women are less often gynecological patients than another class—namely, the medium-worked women, the women who stand on their feet in the shops day after day for several hours, or who sit at their sewing machines, or who ply their needles, often late into the night, in the desperate endeavor to earn their bread in the sweat of their faces. It is such work that inclines them constantly toward an incorrect assumption of the erect posture, either standing or sitting.

In reply to the question of Dr. Ricketts, "Is it possible to put these patients to bed as dry who have been operated on in the Trendelenburg position?" I beg to state that where irrigation is used in this posture it certainly is more difficult to keep the patient dry; but, if just prior to irrigation the incline is lowered, the difficulty can thus be met.

One word more, and I have done. Let me say that I do not desire to be understood as affirming that the imperfect erect posture ought to be charged with causing any large percentage of pelvic disease. But I asseverate that in a considerable percentage of such disease that cannot otherwise be accounted for—*i. e.*, by puerperal, specific, traumatic, or other infection—it will be found that faulty posture plays an important etiological part, either primarily or secondarily. I think you all understand me; you see these cases, and you cannot always readily account for their condition. These women come to you with pelvic

disease, and, although you recognize its presence, just how it began, which is cause and which is effect, is now almost impossible to determine. The disease in a considerable proportion of such cases, I believe, has its origin in the faulty assumption of the erect posture—playing perhaps upon a focus of menstrual disturbance—which, through the law of gravitation and other factors acting to keep alive blood stasis, makes them sickly women.

THE PRESENT STATUS OF OBSTETRICS.

By JOSEPH PRICE, M.D.,
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I START with the frank confession that I have nothing new to offer you. All that I can say has been better said, and put in more classic form. But there are some truths which have become incorporate in our science and practice which cannot be driven too deep, or driven home too often. We will begin at the beginning; we will begin where the obstetrician begins, in the school, and end with speaking of a noble and responsible service, in which he should be preëminent—that of saving mothers and children. In this connection I will be brief. Our first proposition is one we presume will not be disputed; we have too many schools, and the best of them fail to reach that high standard of scholarship, that thoroughness and accuracy of teaching, which answers the crying need of the period. The demand grows, and will reach a force that cannot be resisted, for better teaching. The cry will ultimately come from the people against our medical kindergartens. The people are being educated in our free schools to do some very close scientific thinking, and they know a genuine professor of a science or an art from a rag on a bush. Their intelligence is not fixing the standard of medical education at a low level. It is taken that the measure of the usefulness of an educational institution is the well-founded reputation of its faculty for scholarship. A professor's fitness is found in the accuracy and extent of his knowledge of the subjects he professes to teach and the broad democratic and unselfish spirit with which he teaches, and not in the small repute he may have in the little Jerusalem in which his aristocratic pretensions have located him.

The great responsibility of medical colleges lies in the fact that they educate doctors for the people; they are not instituted to add

prestige to family names, or give a name to some one who would never otherwise have one. The longest stride toward the needed standard will be taken, when our college chairs are no longer huckstered out like some commodity of the street mart, entailed, or lineally handed down; when college presidents and college directors or trustees go outside of their own family circles and find more brains than they can find within them. One need of our schools is less politics and more science; fewer schools and better ones. The small theoretical knowledge acquired through books and lectures is not a very adequate equipment for successful obstetrical practice. The student is brought little in contact with the momentous work he is seeking the education to do. Instead of the study of obstetrics only occupying a few months in the third and last year of the student's college course, as is the case with some of our leading colleges, there should be more time given to its study. Again, it is to be regretted that schools are permitting the use of compends, and of some of these the professors are the authors. They are bad for the student. They are run over as a mere matter of routine; like many of the professors' lectures, it is a perfunctory performance. They are destructive of habits of close and patient study; there is nothing in them but dead letter; they infuse no mental vigor, do not stimulate ambition or incite a spirit of study and research. The learned professor who compiles one should be cremated, and the student in whose hands one is found should be refused graduation. We have a very rich obstetrical literature of easy access to the student. In point of fact, the fresh obstetrical graduate, as far as his information on his subject extends, is at best little more than a compend of an obstetrical primer. The teacher of obstetrics should be a special scholar, and should go at his work with some enthusiasm, as one who appreciated and loved it as a life task; who can inspire love for his subject and scholarly vigor in the student; he should possess the masterly art of communicating what he knows, and that should be all that is possible to know of his subject. The student should leave college with the ability to teach the subject for which the college gives him a certificate of scholarship.

A word here for the student: It is too much a tendency, if not the disposition, of the old practitioner, the veteran in general practice or in some specialty, to grow cold, selfish, distant, and auto-

cratic. He has too little sympathy with or disposition to help the enthusiastic, ambitious, and struggling student, who is in a near day to take his place. The student is entitled to genial and courteous words of encouragement, to be in close touch with him, entitled to the lessons of his experience, to the conclusions of his mature judgment, to the very cunning of his fingers. There is no department of medicine in which graver complications arise than in the obstetrical, none in which all the resources of the physician and the surgeon are more severely tested. There is much in our literature, new and old, upon the subject of puerperal fever; more; probably, than upon any other disease. And, while many important changes and improvements have been made in our nomenclature, we still have in very common use many terms wanting in the elements of precision and definiteness; in this mixed and confusing nomenclature may be classed puerperal fever, which passes under various names, as childbed fever, lying-in fever, including the names of various special affections. Dr. Robert Barnes says: "I would propose that the word should not assume that a distinct specific poison, as sepsis alone is concerned, but that it should be used comprehensively as a general term implying that the blood of the puerpera is empoisoned." For our own purpose it matters not by what name called, whether puerperal fever, childbed fever, or other name, or, with Hervieux, that it is a "multiplicity of affections classed under one name;" or, yet another, that "puerperal fever is puerperal septicemia." Whether resultant from infection or inoculation, we have no difficulty in our search for primary causes. And our science, our experiences, and clinical observation mark out for us very definite lines of treatment. Dr. Gaillard Thomas makes a very happy summary: "After all that has been said on this subject, the essential fact is this: that plan is the best which accomplishes most perfectly the cleansing of the parturient canal."

The ante- and post-partum douche should never be omitted; the importance of douching the vagina and cleansing the mucous canal is as vital as cleansing the examining finger and hand. It operates not alone to save life and to promote the comfort of the mother, but serves yet another important function—it saves the eyes of the infant. As a douche, mercury is the most reliable, energetic, and least dangerous; some of the solutions have but little more value than water. We have numerous cases reported with a

history of filthy discharge, bad odor antedating labor, labor protracted and complicated, forceps used, followed by alarming symptoms and death. In this great group of cases, recognized by all of you, had a careful ante-partum toilet been made, bad symptoms would not have followed one of the most trying of instrumental interferences. It is exceptional to have bad symptoms following any of the serious accidents incident to parturition, where this simplest and easiest of precautions has been scrupulously exercised.

Molecular death and decomposition is always followed by symptoms which could be avoided. The expression method of the placenta is the safest, easiest, and wisest we can use. In regard to retention of fragments of placenta and membranes, both of common occurrence, they are usually cast off in a day or two.

The drainage does the work effectually. The present too free use of the curette does the mischief. It is very commonly used without a recognition of an indication; the fancy is indulged that there is something in the uterus out of reach, or that cannot be detected by the finger, and doubtful or mischievous methods are adopted to remove an imaginary trouble. Some acute pyemias and deaths have followed the too frequent and ill-advised use of the curette, or rather its abuse. The symptoms of putrid masses in the cavity of the uterus are always well marked; there is but one treatment in such cases—that is, emptying and cleansing the cavity of the uterus, followed by perfect drainage. While calling your attention to the abuse of the curette, I will mention the abuse of abdominal section and extirpation of the uterus; both are likely to be greatly abused. I scarcely think that there are very many men so specially trained as to be prepared to exercise that judgment needed to determine upon suitable cases. In saying this I make no reflection upon my brothers of the general profession. The field of medicine is too extensive in its acreage for the absolute ownership of any one of us; we are wise if we know the bounds of our one little plat, and we find enough within it to tax our limited science and art. I would urge the most serious consideration and consultation before resorting to operative interference, and this by men equipped by clinical experience and observation. The work should not be one of venture or guess. All perineal lacerations should be carefully stitched. The use of the cautery on vaginal and cervical tears is difficult, alarming, and dangerous, and is a

needless practice. The use of carbolized solutions is also a dangerous practice. Free use of drugs is harmful. Salines, used freely, quinine and whiskey are valuable, when indicated.

The use of the educated finger in determining the presence of uterine débris or filth is the safest and surest of all diagnostic methods. Thoroughly cleansing the uterine cavity, followed by cutting off the supply of septic material, offers the best means of safety. If the suppuration has passed beyond the uterus, through the tubes, to the peritoneum, the free use of salines is likely to give relief. If peritonitis develops and the objective and subjective symptoms are clear, nothing short of quick and radical treatment will avail. Where there is the presence of an angry pelvic peritonitis, due to an acute purulent salpingitis, with lymph, pus, muddy fluid and fresh adhesions, the only treatment is section, removal of the virulent appendages, irrigation, and drainage. The opium treatment has no place in peritonitis. Dr. Dolan, of Halifax, England, says: "I have had only two cases of septicemia in 3,453 consecutive cases of obstetrics. I attended mothers five, seven, nine, eleven, and thirteen times, depending upon cleanliness alone, and my results, I submit, justify the practice." The register of the causes of death and statistics, so far as it is conclusive or reliable, intelligibly and forcibly remind us that many of the causes of childbed fever are preventable or removable. From a large experience I am convinced that there is no one specific cause capable of infecting only lying-in women. I do not rely upon my own solitary experience for the foundation of this conviction, but I am sustained by the old records and experiences of eminent practitioners. Dr. Playfair says: "I have no doubt in my own mind that the vast majority of cases of puerperal septicemia arise from poison directly conveyed to the patient by some preventable accident. Many and many a case has originated with a nurse, and in a hundred unsuspected ways, quite beyond the control of the medical man, death may be conveyed to the patient." There is every evidence that women often die in childbed, poisoned in some way by their medical or other attendants; the particular mode or channel of infection does not concern us so much as the fact of transmission.

Both as a lesson and a reproach we call up these avoidable errors. Dr. Thomas Oliver, in a paper read before the British Gynecological

Society, says: "There are degrees of puerperal septicemia, just as there are types; it may be so severe that the patient is simply saturated with the poison. She dies without sufficient time being given for the development of any morbid phenomena attributable to one function or organ. The poison has a special affinity for serous membranes, such as the peritoneum, pleura, endocardium, and joints; in other patients, pneumonia is developed or the mucous membranes suffer, while in all the blood exhibits a marked tendency to clot. There may be multiple embolisms, and these are dangerous in proportion to their number and the particular organ in which they occur. All types of the disease are dangerous, but particularly puerperal peritonitis, for it is apt to extend to other serous membranes." It is difficult to answer the question as to what occurs when the ordinary exanthemata are conveyed to parturient women. My own experience in regard to scarlet fever is that it is scarlatina which is conveyed, and not puerperal septicemia; but against this I must ask you to consider the experience of Dr. Braxton Hicks, who, out of sixty-eight cases of puerperal disease, traced thirty-seven to scarlatinal poison; of these, twenty had the scarlatinal rash, while the remaining seventeen, although the history clearly showed exposure to the scarlatinal virus, could not be distinguished from ordinary cases of puerperal fever. The same doubt surrounds the relationship of puerperal septicemia and erysipelas. Playfair states that in King's College Hospital the association of erysipelas and puerperal septicemia was again and again observed, the fatality of the one being dependent upon the prevalence of the other. Dr. W. Smith, of King's College, in his paper dealing with the cultivation of the microörganism of erysipelas and puerperal septicemia, showed that the streptococci of puerperal septicemia are not the microörganisms of erysipelas. I should not like to close my mind altogether to the possibility of these diseases being interchangeable. The blood of the woman just confined is so different from that of her sister in health, that we know little of the influence it exercises upon microörganisms that find their way into it. Dr. Gregg has done the profession valuable service by showing in his paper "The Dangers Arising from Diseased Uterine Appendages in Childbed," that many cases of puerperal peritonitis are due to rupture of pelvic cysts, old-standing pyosalpingitis, and abscesses in the ovaries traceable to gonorrheal infection.

Our accumulated knowledge of pelvic and abdominal disease has given us more precise knowledge of the causes and relations many such troubles bear to acute puerperal peritonitis. The presence of a diseased tube or ovary, small dermoid or cystoma, injured or crushed in delivery, is not an uncommon occurrence. My own experience in erysipelas and exanthemata does not correspond with that of Braxton Hicks. The presence of one or both of these troubles in a hospital only increases the sources of filth and contamination; in these cases the attendants, medical and others, are not fit persons to care for women in childbed, especially in hospital practice. The records of institutions belonging to the old school of midwifery and surgery are not reliable.

The mortality in private and public hospitals has diminished with increased knowledge of sanitary refinement. More than one hundred years ago (1790), Clark pointed the way to improve our lying-in hospitals. He cleaned and purified his wards, and then attended 960 women, with a mortality of three. Maternities throughout the world have grown to recognize the importance of having at their head only men of large practical experience, men who have worked vigorously for a broad, practical knowledge of every duty and demand of their profession, who have had the benefit of many and the best bedside lessons. The vital importance of practical experience in the management of maternities is illustrated by the low percentage of mortality in Cesarean and Porro operations, in eclampsia, placenta previa, and all other dangerous complications of pregnancy. The importance of maternities is not appreciated by the profession and our American communities to the extent such an interest merits. They should be maintained in all our mining and manufacturing towns, wherever women are found without the comforts or with but the meagre necessities of life. The dictates of humanity urge their establishment. There is no time in woman's life in which she so thoroughly appeals to all that is best in our human make-up, as in her parturient period. The mortality has always been high in private life among the poor; it has been about *nil* in well-managed hospitals and dispensary service, and in the practice of careful men, while it has been appalling in the work of midwives. Our progress in science, our improved, almost limitless clinical opportunities, our better understanding of sanitary conditions, and a now more wisely directed private and public

benevolence, will make the hospital of the future nearer the institution it should be. In hospital management there will always be *elements of embarrassment, jealousies*, and *interferences* that are *disastrous to successful management.* There is nothing in which some people are so damagingly and offensively officious as when they are benevolent with other people's money.

The majority of us will agree with Dr. Robert Barnes in the following statement: "If the history of many lying-in hospitals could be fairly written, we should have a terrible record of lives sacrificed to ignorance, to reckless disregard of medical authority, to architectural folly, to maladministration, to scandalous experimentation of fanciful crotchets; uninformed benevolence overriding the practical benevolence of science has always been prolific of disaster." Nowhere can it count more victims than in the lying-in hospital. The first imperative condition for the safety of women in lying-in hospitals is the absolute authority of the physician. If this is denied him, his duty to humanity and to his profession is to resign. This is the condition upon which he attends a private patient, delivered at her own house. It is imperatively more necessary that he should insist upon it, when the care of many women in a hospital is thrown upon him. A leading principle is to simulate the conditions of each patient in a large lying-in hospital as near as possible to those of the patient delivered at her own home. Isolate as much as possible. Take all care that any ill which may attach to one patient shall be limited to her. Isolation of patients in lying-in hospitals is of the greatest importance. This principle is carried out at the Preston Retreat. The Paris Maternity was devised by Farrier, and is described by him. He says that in 1856, when he was interne at the Maternity, the mortality was above 5 in 100. This was now reduced to 2 in 100 in the hospital generally, and 0.075 in 100 in the pavilion he had constructed a few years ago. The chief point in this pavilion is that each patient has a separate room, entered from the outside, so that a nurse can only pass from one room to another by going outside into the open air. The furniture is all of japanned iron; the floors, walls, and ceilings are of impermeable concrete. The mattresses and pillows are stuffed with oat chaff, which is burned after use in every single case. Instead of a mackintosh sheet, a sheet of brown paper made impermeable by pitch is used, and this too is burnt after use. He

has used various antiseptic solutions for washing the genitals—borax, carbolic acid, sulphurous acid, and bichloride of mercury. As the result of experience, he concluded that a weak solution of bichloride of mercury was the most powerful germicide.

The surprising plea is sometimes put forward by a certain class of surgeons that it is easier to carry out asepsis than continued cleanliness; they had better be schooled in the use of water, or try the deordorizing, disinfecting, and cleansing influence of a Turkish bath. The physician doing a large maternity practice should not be his own stableman or coachman, and he should be clean for his work. While the physician is indifferent to sanitary conditions, while he selfishly, or in a spirit of professional bigotry or egotism, holds to the idea that his little science and art can avert, remedy, or cure the results of neglected sanitary conditions, the important matter of the education of the layman or citizen will not begin. His responsibility in this matter is a weighty one; his voice, when he does his duty and exercises it, is a potent one. The citizen's sanitary obligations cannot be too strongly urged upon him; he has a direct and vital interest in the public health and he should be made to understand the broad fact of the destructiveness of all filth; the sanitary authorities should have his earnest coöperation and aid. And here we would suggest, that the selection of health officers more for their interest in and their knowledge of filthy ward politics than for their interests in healthful conditions and wise sanitary administration, will not greatly aid us in getting rid of the poisons we contend against. Every general practitioner and surgeon should be a teacher in the great public school of sanitary education. The lesson should be impressed that fatal germs abide in dust, dirt, decaying animal and vegetable matter, in all imperfectly cleansed clothing, personal and bed, of every description. Inattention to local cleanliness, bodily ablutions on the part of the patient and attendant, neglect or failure to remove all refuse, solid or liquid—in fact, all forms of local or general uncleanliness favors specific infections. Not only is this true of maternity work, but in its general relation to public health it may be reckoned as the most fatal of the removable causes of disease. Filth creates infectious atmospheric conditions that baffle the wisest of sanitary administrations. Every epidemic begins in dirt, and at no time could we better realize and take close home this fact than now, when one of the direst scourges that ever

afflicted the human family has touched our shores. We cannot have too strong an appreciation of the force of example. In all communities, especially rural, the physician is the trusted counselor, even in matters outside of his profession; his word has in it something of the authority of law. There is something in the dude worthy of our following—he gets off the outside dirt.

To illustrate and fortify what we have said about our maternities and their management, we give the following statistics:

TREATMENT OF PUERPERAL ECLAMPSIA.

Dr. Lohlein, of Giessen, from statistics derived from all German clinics for the years 1889–90, inclusive, out of a total of 53,328, found 325 cases of puerperal eclampsia (*The Medical Press*). The disease was most prevalent in the Charité, where it occurred once in 67 cases, and least in Vienna, where the proportion was only once in 328. Of the 325 cases, 63 died of the disease, and 14 others of complications; the mortality was, therefore, 19.38 per cent. The lowest mortality was in the primiparæ, attacked after labor (11.6 per cent.); the highest in multiparæ, attacked before the birth of the child.

Among the 248 who survived, 13 suffered later from psychoses, from which the majority recovered completely, and 82 from persistent renal diseases (11 cases of chronic nephritis). Operative interference was called for in 71.1 per cent. of the cases; forceps, 108; turning, 19; operation for diminishing the size of the fetus, 13; artificial induction of labor, 2; Cesarean section, 7 times—5 times on dead mother, 1 on dying mother, 1 on living, with a successful result for both mother and child. The latter method of treatment would be in place only when the child was certainly living, but in great danger of being killed, and in which no narcotic stopped the convulsions, and when there was no other way of effecting speedy delivery. As regards medicinal treatment, large doses of morphine deserved the preference. (*Medical Record*, December 5, 1891.)

ONE THOUSAND CONFINEMENTS IN THE SLOANE MATERNITY, NEW YORK.

A most excellent and gratifying showing is given the profession by Dr. James W. McLane, physician-in-charge of the Sloane

Maternity Hospital, New York, in his "Report on the First Series of One Thousand Successive Confinements." The record is one to be proud of, and we congratulate the profession on the fact that it is American. It will take high place among the best records made by any of the maternities of this country or Europe. We subjoin a table of the mortality in the one thousand cases, with the analysis of the author, which fully explains away any unfair criticism that might be made on the percentage of mortality:

	Mortality.
Chronic Bright's disease	1
Rupture of the uterus	1
Placenta previa	1
Placenta previa with contracted pelvis	1
Eclampsia	1
Septicemia	1
	6

"An analysis of these cases shows that in one instance death was due to chronic organic disease and not to labor; in another the patient was moribund when taken from the ambulance; in a third —a case of placenta previa—the fatal termination was owing to delay in procuring medical assistance, the woman having nearly bled to death before coming to the hospital. There was one death from puerperal septicemia. This patient was admitted in the second stage of labor, in a most filthy condition, having been examined at her home, and from her symptoms and temperature was believed to be in a septic condition when she entered the hospital.

"There were six deaths among the one thousand cases—one in nearly one hundred and sixty-seven, or 0.6 per cent. Taking into consideration the character of the service; the large number of emergency cases brought to the hospital by ambulance, many of them well advanced in labor; the bad condition of many on admission, owing to neglect or unskilful treatment, the record of mortality is very satisfactory. The result is due to a combination of measures looking to the safety of patients, each having a certain value of its own, and in the aggregate producing a very low death-rate. The small size of the wards, their use in rotation, the scrupulous care exercised to guard against all sources of infection from without and within, the skilful nursing, the free use of antiseptics, the strict cleanliness enforced, and the lavish supply of fresh air, are it is believed, in great degree accountable for these results."

The statistics here given are of interest:

Table I.—Nationality.

Out of the 1000 women confined, there were born in

United States	377	Switzerland	8
Ireland	320	Hungary	5
Germany	104	Denmark	4
England	52	Wales	4
Sweden	32	Poland	4
Russia	19	Saxony	3
Scotland	17	Norway	3
Austria	17	East Indies	1
France	17	Roumania	1
Canada	11	Spain	1

Table II.—Ages.

Oldest patient	46 years.
Youngest patient	12 years 10 months.
154 patients were under	20 "
659 " " between	20 and 30 "
171 " " "	30 and 40 "
16 " " "	40 and 50 "

Table III.—Proportionate Number of Cases occurring in the Several Pregnancies.

1st pregnancy, number of cases	547
2d " " "	232
3d " " "	91
4th " " "	52
5th " " "	25
6th " " "	11
7th " " "	14
8th " " "	9
9th " " "	10
10th " " "	5
11th " " "	1
12th " " "	2
17th " " "	1
Total	1000

Table IV.—Presentations under which Children were Born.

Vertex	936	or 93.6	per cent.
Breech	49	" 4.9	"
Transverse	10	" 1.0	"
Shoulder	5	" 0.5	"
Face	3	" 0.3	"
Brow	2	" 0.2	"
Foot	2	" 0.2	"
Doubtful	6	" 0.6	"

TABLE V.—RELATIVE FREQUENCY OF THE FOUR POSITIONS IN VERTEX PRESENTATIONS.

Position.	No. of cases.	Position.	No. of cases.
L. O. A.	610	R. O. P.	77
R. O. A.	227	L. O. P.	22

TABLE VI.—NUMBER OF CASES REQUIRING OPERATIVE INTERFERENCE, AND OPERATIONS PERFORMED.

Induction of labor	12 cases.
Forceps	83 "
Version	14 "
Craniotomy	3 "
Total	112 "

Twin Cases.—Of twin cases there were thirteen, about one in seventy-seven of the whole number of women delivered, or 1.3 per cent.

Both males	2
Both females	4
One of each	7
Total	13

Presentations in Twin Cases.

Vertex in both	6
Vertex and breech	4
Vertex and transverse	2
Breech or transverse	1
Total	13

In 7 cases there were 2 amniotic cavities and a single placenta; in 6 cases there were 2 amniotic cavities and a double placenta. In no case was there a single amniotic cavity.

Face Presentations.—

Number of cases	3
Living	3
Dead	0

Two of the patients were delivered by natural efforts, one by forceps. In two cases the position was L. M. A.; in one L. M. P., rotation, however, taking place, so that it terminated as R. M. A. Two children were born alive; the one delivered by forceps was stillborn.

Forceps Cases.—Out of 1000 births, labor was terminated by forceps in 83, or 1 in about 12, or 8.3 per cent. Their frequent use has saved much maternal suffering, not to say many lives, and

greatly reduced the infant mortality. Out of the 83 cases none of the mothers died; of the 84 children, 75 were living, 9 stillborn, including premature twins.

Males living	50	75
Females living	25	
Males dead	5	7
Females dead	2	
Premature twins	2	2
Total	84	84

Craniotomy.—The number of cases in which the fetal head was perforated was 3, or 1 in 333, or 0.3 per cent. The causes which led to the operation were in 2 cases impacted brow-presentation, in 1 contracted pelvis. In all the cases the children were dead prior to the operation. None of the mothers died.

Induction of Premature Labor.—Labor was induced twelve times. The indications for the operation were as follows: Albuminuria in 4 cases; eclampsia in 1 case; contracted pelvis in 3 cases; chorea in 1 case; placenta previa in 1 case; death of fetus in 1 case; accidental hemorrhage in 1 case. All the mothers recovered. Seven children were born alive; 5 were stillborn, not one of these being viable.

Placenta Previa.—Nine cases occurred, or 1 in 111, or 0.9 per cent. Of these, 5 were complete, 4 partial. Two of the mothers died, or 1 in 4.5, or about 22 per cent. Details of these cases and two others are given below. In one this fatal result was due to delay in obtaining medical assistance, the patient having nearly bled to death before coming to the hospital. In both, transfusion was performed.

Four of the children were stillborn, 5 were delivered alive; of the stillbirths, 2 were premature, the child not being viable. Version was performed in 4 of the cases; one child was delivered by forceps.

Eclampsia.—Four cases occurred, or 1 in 250. In 2 the convulsions came on before labor, in 2 during labor; in one of the latter the fits continued after delivery. One mother died. The urine was albuminous in all the cases. In one (*vide* Case IV., induction of labor) there were 26 convulsions, the children—premature twins—being stillborn. In the three other cases the children were born living.

Post-partum Hemorrhage.—The total number of cases of hemorrhage after delivery was 14, or nearly 1 in 71, or 1.4 per cent. All the mothers recovered, and only one of the children was stillborn. In all the cases ergot was given, in the form of fluid extract, by the mouth, and in 3 cases ergotine hypodermatically. In 4 cases, after the failure of the ordinary means, vinegar was applied to the interior of the uterus, with the invariable result of arresting the bleeding and securing uterine contraction.

Rupture of Uterus.—One case occurred, or 1 in 1000.

DR. D. COLVIN,

of Clyde, N. Y., never used antiseptics, and in 1279 cases of confinement lost but one woman, and she died immediately after the removal of the placenta. No antiseptics were used in any of the following cases:

	Cases.	Deaths.
Dr. D. Colvin	1279	1
" Kemper	900	2
" J. T. Chenowith	1600	1
" N. T. Chenowith	708	2
" A. A. Farquhar	500	2
" Thomas Botkin	525	5
" J. S. Blair	419	2
" William F. Mitchell	700	1
Total	6631	16

All of these deaths were not septic, and yet the whole mortality was less than three-tenths of 1 per cent.

DR. G. W. KEMPER,

of Muncie, Indiana, presents a table that is well worthy of a place in the annals of our obstetrics. In reporting 1000 cases, he says:

"In order to show at a glance a general summary of my cases, I will introduce at this point statistics showing by way of comparison the 1000 cases in two groups of 500 each. The similarity of the two columns is striking, as demonstrating how medical statistics repeat themselves and show a tendency to uniformity:

	1st 500		2d 500		Total.
Primiparæ	173	+	160	=	333
Multiparæ	327	+	340	=	667
Males	258	+	260	=	518
Females	251	+	244	=	495
Primiparæ { males	70	+	76	=	146
Primiparæ { females	104	+	84	=	188

	1st 500		2d 500		Total.
Vertex presentations	486	+	483	=	969
Vertex and hand	1	+	1	=	2
Face	0	+	2	=	2
Breech	13	+	13	=	26
Footling	7	+	4	=	11
Shoulder	2	+	1	=	3
Twins	9	+	4	=	13
Convulsions	6	+	3	=	9
Post-partum hemorrhage	6	+	6	=	12
Adhesion of placenta	8	+	3	=	11
Prolapse of funis	3	+	2	=	5
Placenta previa	1	+	2	=	3
Inversion of uterus	1	+	0	=	1
Turning	2	+	1	=	3
Cephalic version	1	+	0	=	1
Forceps	6	+	31	=	37
Colored	7	+	8	=	15
Illegitimate	5	+	3	=	8
Death of mother	3	+	0	=	3
Stillbirths	17	+	19	=	36

"There were 737 different women involved in the 1000 cases, distributed as follows:

Attended 550 women	1 time	=	550
" 129 "	2 times	=	258
" 43 "	3 "	=	129
" 12 "	4 "	=	48
" 3 "	5 "	=	15
737			1000

"In order that the reader may not suspect inaccuracies in my figures, I desire that he will bear in mind that I had 13 cases of twins, and while the labors will number 1000, the births will number 1013."

"*Placenta Previa.*—Three cases of this terrible complication were met with: 1 in a II-para, 1 in a IV-para, and 1 in a V-para. All the children were stillborn and all the mothers did well.

"*Convulsions.*—I encountered 9 cases of convulsions. Of these, 7 were I-para, 1 II-para, and 1 V-para; 8 women recovered, 1 died.

"*Forceps.*—With each succeeding year I resorted more frequently to the use of this instrument. I used forceps 37 times, as follows:

1st 300 cases	1 time	or 1 in 300 cases.		
2d 300 "	9 times	" 1 "	$33\frac{1}{3}$	"
3d 300 "	17 "	" 1 "	$17\frac{1}{2}$	"
Last 100 "	10 "	" 1 "	10	"

An average of once in 27 cases.

"*Death of Mother.*—Three of the women died. The deaths occurred respectively by No., as 68, 360, and 381, so that after my third loss I had 619 labors, with no death."

It is worthy of notice that the favorable statistics given by country practitioners, or men working in healthy regions among a vigorous class of women, few of foreign birth, show that they have not that unfavorable class of subjects we have to contend with in large cities, many of whom are destitute of the bare necessaries of life—of sufficient and proper food; still our mortality with these unfavorable subjects is quite as low as theirs. They also admit that better surroundings and more prompt treatment in many cases would have given better results. Again, our results among the poor are better than among the wealthy. The conventionalities of society, artificial methods of living, excessive and badly directed educational efforts, have decidedly incapacitated our women for childbearing. Consultations and delays have increased our mortality in both mother and child. The conclusions of Dr. Kemper, a country practitioner, support some of our views:

"1. The history of obstetrical practice teaches us that the lying-in hospital has always been a place of danger and mortality; therefore, it is obligatory upon those that have charge of these institutions to utilize every antiseptic measure known to the profession in order to save life.

"2. The experience of country practitioners teaches us that women that are confined in healthy, isolated rural homes are not subjected to the contaminating influences of an ochlesis, and consequently do not require all the precautions of those exposed to hospitals, or even to the atmosphere of city life.

"3. That country practitioners of medicine will generally show a lower rate of mortality in obstetrical cases than city practitioners, simply for the reason that they practice in healthier localities, are less exposed to contagious influences, and possibly have a healthier class of patients."

WOMAN'S HOSPITAL.

Dr. A. M. Fullerton furnishes the following:

MATERNITY DEPARTMENT OF WOMAN'S HOSPITAL OF PHILADELPHIA.

Confinements and Deaths from January, 1862, to January, 1892.

Year.	Number of confinements.	Non-septic causes of death.											Septic.			Unclassified.	Number of deaths from all causes.	Percentage of deaths from all causes.	Number of deaths from non-septic causes	Percentage of deaths from non-septic causes.	Number of deaths from septic causes.	Percentage of deaths from septic causes.
		Uterine fibroma.	Uræmia.	Meningitis.	Phthisis.	Pneumonia.	Malaria.	Smallpox.	Bronchitis.	Pericarditis.	Erysipelas.	Valvular disease.	Peritonitis.	Septicæmia.	Metritis.							
1862	25	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	4.00	1	4.00	...	...
1863	37	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	....	...	...
1864	40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1865	41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1866	36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1867	29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...
1868	41	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	2.43	1	2.43	...	...
1869	48	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	2.09	1	2.09	...	...
1870	40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1871	35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1872	48	...	...	...	...	...	..	1	...	...	...	...	...	...	...	...	1	2.09	1	2.09	...	...
1873	41	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1874	79	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	3	3.79	...	...	...	...
1875	62	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	3.22	...	...	1	3.22
1876	102	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	0.96	...	...	1	0.96
1877	107	...	...	...	1	1	...	...	...	...	...	...	1	1	...	...	4	3.73	2	1.87	2	...
1878	104	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1.77	...	...	1	1.77
1879	90	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	2	2.22	...	...	2	2.22
1880	70	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	2	2.85	1	1.43	1	1.43
1881	88	...	1	...	...	...	...	...	1	1	...	1	2	...	...	...	4	4.54	3	3.40	1	1.19
1882	75	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	2	2.66	1	1.33	1	1.33
1883	65	...	...	1	...	...	...	...	...	...	...	...	1	1	...	...	4	6.17	1	1.54	3	4.01
1884	93	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1885	82	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1886	69	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1887	102	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...	...	...
1888	103	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	2	1.94	2	1.94	...	...
1889	122	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	1.94	2	1.94	...	...
1890	143	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	0.69	1	0.69	...	...
1891	159	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	2186	1	5	2	2	2	2	1	1	1	1	1	8	4	1	3	34	1.67	17	0.89	13	0.64

"I should like to explain with reference at least to the deaths that have occurred during my term of service, which dates from 1886, that nearly all have been emergency cases that have been brought us in labor, and in which treatment was often instituted too late to be of benefit. We take in emergency cases, as you probably know.

"The death this past year was of a patient brought me by the police patrol in a comatose state during first stage of labor at term; the patient having had at least sixteen convulsions during the morn-

ing, and having been blind since the preceding day. There was advanced kidney disease found on autopsy.

"Last year the patient with erysipelas of head and upper extremities was brought to us in second stage of labor, the fetal head resting on the floor of the pelvis, on admission.

"In 1889 the German Hospital sent a patient in labor during the last stage of phthisis.

"The case of uterine fibroma was a sudden death, after delivery, thought to be due to air in the veins. The patient had been in the house some time, and we wanted to do a Porro, but the consulting staff could not agree.

"In 1888 the death from uremic convulsions occurred, in a case of fatty heart with valvular disease, shortly after delivery.

"The other death the same year was from meningitis, in a case of acute chorea complicating pregnancy at the sixth month. The patient was brought to us in a dying state, and lived but a short time.

"The death recorded in 1887 is a mistake. The convulsions occurred during labor (first stage). Delivery was effected; the child died shortly after, but the mother made a good recovery."

THE PRESTON RETREAT.[1]

This maternity hospital owes its origin and endowment to a bequest in the will of Dr. Jonas Preston, dated "twelfth of the fifth month, 1835." The item of the will making the bequest, among other things, says: "It has long been my opinion that there ought to be a lying-in hospital in the city of Philadelphia, for indigent married women of good character, distinct and unconnected with any other hospital, where they may be received and provided with proper obstetric aid for their delivery, and with suitable attendance and comforts during the period of weakness and susceptibility which ensues, continuing, ordinarily, about four weeks. I have no doubt that there often is much suffering and loss of life in such cases from the effects of ignorance and destitution, and I think an establishment for affording the required assistance well deserves a place among the

[1] There have been 1100 cases without a death from any cause, including one Porro operation.

numerous charities which attest the Christian philanthropy that characterizes Philadelphia."

The execution and carrying out in fullest detail this beneficent and generous bequest fell into conscientious and honest hands. Chief among the organizers—those who built, equipped, and lined out the policy and work of the charity—was Eli K. Price, one of the executors named, and one of the most eminent lawyers among the many whose names adorn the roll of the Philadelphia bar. His public spirit, enterprise, and knowledge of affairs placed the institution on a solid working basis, and secured to it a wise management. The institution is under the control of a board of managers, selected for high character, intelligence, business capacity, and their interest, zeal, and enterprise in charitable work.

The hospital building is one of the most complete for its purpose in existence. It is a square marble building of four stories, with large cruciform corridors throughout the length and width of the building. The puerperal wards are so placed as to join the building proper on one side only, all approached by verandas on the sides and rear of the house; these are enclosed in glass revolving sash. The wards and baths are entered from the open verandas, so constructed as to give a circulating atmosphere between all wards. The plumbing is in piers twelve feet from the building proper; all plumbing fully exposed for inspection and cleaning. There is no plumbing in the building proper. It is well lighted, thoroughly ventilated and warmed by direct radiation. The laundry is located on the grounds, at some distance from the hospital building. On the ground-floor of the hospital are located the dining-room for patients, matron, nurses, and domestics, also sitting-room and toilet for patients awaiting delivery. On the second floor, office and library, four large wards, delivery-room for same and matron's room. On the third floor, four large wards, delivery-room, and room for nurses. On the fourth floor, six large wards for patients awaiting delivery, and also rooms used by domestics. Practically, patients are admitted two weeks before delivery, and remain four weeks after delivery. This is a very wise and humane feature in the management, for it gives time for the ill-fed, weak, and broken-down patients to regain health and strength sufficient to withstand the sufferings of childbed; and the extended time after delivery arms them, through careful

treatment, healthful food, and rest, for their domestic and other duties.

Upon admission, patients go direct to the baths, twelve feet from the building proper, where they are thoroughly cleansed by soap-bath, superintended by a nurse. Up to the time of delivery, the soap-baths are repeated twice weekly. The bowels are kept soluble; nutritious diet is supplied; the kidneys and general condition watched while awaiting delivery. They retire at an early hour to well-ventilated wards, furnished with single iron bedsteads with hair mattresses; toilet-room on same floor near by. After rising in the morning, they go to the sitting-room on the ground-floor, where they remain throughout the day; toilet outside of building, in close proximity to dining- and sitting-rooms, thus avoiding climbing stairs through the day. During pleasant weather they have the extensive grounds, well filled with shade trees, to stroll over. The sitting-room is on a level with the ground. All deliveries take place in large, well-lighted, and well-ventilated delivery-rooms, all surrounded by large corridors. These rooms are painted, and simply furnished with a small delivery-bed on rubber casters, and a small iron bed for doctor or nurse; near by, a table for basin and pitchers, a small gas-stove for heating water, and a small medicine-closet.

Preparation of Patient, Doctor, and Nurse for the Delivery-room.—First, patient receives a thorough soap-bath, vaginal douche of bichloride, 1 : 2000, and a rectal enema of soap-water, clean gowns, and enters the delivery-room. Physician and nurse make thorough toilets with water, soap, and brush, which they repeat after entering the delivery-room.

But few examinations are made. Patient commonly delivered on her left side; on her back if she prefers; on her back if instrumental interference is necessary. The Credé method of placental expression is always practised. All perineal rents are closed by applying the Emmet inside method of suturing—silkworm-gut is preferred. One vaginal douche after delivery of placenta, 1 : 2000 of mercury; this ends all douching. The pad dressing is used from four to six days; longer if necessary. If the labor has been normal, after the vaginal and external toilet, she is wheeled on the delivery-bed, from which all soiled articles have been removed, to the ward, and placed on a new straw bed, where she remains for ten days;

longer if necessary. The puerperal wards contain five beds, are all large and well ventilated, with an open fire. The relay system of nursing is practised. All patients change beds thrice while in the Retreat—single hair mattress while awaiting delivery, new straw bed for ten days after delivery, and a wide hair mattress in the convalescent ward. The nurses are required to practise the strictest cleanliness; first, in their own persons and toilet; second, in that of the patient. Each nurse has her own bath and toilet appliances.

The nurses are instructed not to spare the laundry. No wash-rags or sponges are permitted in the building. All soiled articles are removed from the wards and house proper, and taken to the laundry every three hours, where, without delay, they undergo a thorough laundrying. The nurses are supplied with, and urged to read, all literature relating to childbed and maternity hospitals.

All the care, painstaking, and refinements practised in abdominal surgery are carried into every detail of the work of the maternity.

There is some similarity in the management of the hospitals of Germany to that of our own country, as shown by the following interesting and instructive report:

REGULATIONS IN NORTHERN GERMANY TO PREVENT CHILDBED FEVER.[1]

Confinement-room. — Floors of asphalt; wall for six feet painted in oil; plumbing receives careful attention. The floors are daily cleansed, while the walls and floor receive especial attention after each case; some hospitals (Königsberg) using a 3 per cent. solution of carbolic acid.

Each room is supplied with steel nail-cleaners, scissors, nail-brush, and soft soap. For disinfection, solutions of bichloride or carbolic acid are used.

The patient usually remains in the bed she is confined on, which is taken into the wards as soon as practicable. The iron bedsteads are readily cleansed. In Göttingen, the confinement-bed is of wood and painted white; it is cleansed with a 5 per cent. solution of carbolic acid after each case.

The mattresses, as a rule, are new, made with straw, over which

[1] Klinische Jahrbuch, Berlin, 1889, 1890, 1891.

is placed a rubber sheet; the exception is in Kiel, where they use hair mattresses enveloped in a rubber cover, which is cleansed previous to and after using with carbolic acid or bichloride solutions. The feather pillows and woollen blankets are treated with sulphurous vapors after the usual washing process.

Clean linen cloths are used to catch the lochia; or, in Göttingen, one-metre-square clean straw pillows or sublimate wood-wool. Of principal importance is the frequent changing of these pads. In Königsberg the changes are from twenty to thirty times during labor, and the first few days after, six—later four to two—changes daily.

Pregnant women are taught, while waiting, the great necessity of cleanliness and instructed how to keep themselves clean. When labor begins, the patient receives a warm bath and clean clothes. During or after the bath the genitalia are thoroughly cleaned and shaved; usually a disinfecting vaginal injection is used after one of soap and water.

In Marburg, the preliminary vaginal douche with sublimate is only omitted in cases of pronounced anemia, placenta previa, or nephritis.

If the labor is prolonged, a vaginal douche is usually given after examinations. The exceptions are that in Breslau and Königsberg they are given before and after an examination, while in Griefswald no injections are used after the first 1 : 1000 bichloride. During labor no injections are given.

Intra-uterine injections are given of $2\frac{1}{2}$ to 3 per cent. solution of carbolic acid *only* after intra-uterine manipulations have been necessary.

After completion of labor and before the patient is removed to the ward, another vaginal douche is given. After this, the main object is to keep the patient and surroundings in an aseptic condition; all examinations, injections, etc., are proscribed.

For clinical instructions, the patient is never submitted, during the first ten to twelve days, to internal examinations.

In pathological conditions it may become necessary for the physician to examine; also the use of injections may become urgent.

The external genitals are usually cleansed with a stream of water twice daily. The nurse is *never* allowed to touch the parts with her

fingers. The patient or a disinfected person may remove, with the aid of a wad of cotton, any clots or débris.

The irrigator consists of glass, and is used only for the one patient; when the patient leaves it is destroyed.

The wards, containing usually four beds, are cleansed in the following manner: Aired thoroughly one day, then the night following doors and windows are closed, and the room fumigated with a half-kilogramme of sulphur; then aired again; then the floors, walls, and furniture washed with a 3 per cent. solution of carbolic acid. After this another airing for a half-week.

Patients with high temperatures are isolated in Halle.

The students are usually instructed, particularly in the early part of the course, regarding the importance of asepsis and disinfection.

Their *conscience, honor, and humanity are appealed to.* Most clinics have printed rules, which are distributed to every student to prevent any excuse from ignorance.

Those who have attended cases of septic infectious diseases—erysipelas, scarlet fever, pyemia—are not permitted to enter the maternity wards.

In Breslau the student pursuing pathological or anatomical studies must disinfect and relinquish such studies for one day before he can attend a labor case. In Bonn, Königsberg, and at the Charité in Berlin, the limit is twenty-four hours; in Griefswald, thirty-six; in Halle and Kiel, forty-eight; and in Göttingen, four days.

In the Frauenklinik in Berlin and in Marburg those are not allowed to enter the maternity who attend any operating courses; general practitioners are also excluded.

Fritsch, in Breslau, desires to arrange it that the student cannot study obstetrics and pathological anatomy in the same year. On the other hand, Kaltenbach, in Halle, calls attention to his good results in spite of having had a clinic of 143 students, most of whom had at the same time taken surgical operating courses.

The student who receives charge of a patient is the only one permitted to examine, except the director or assistant physician of the hospital.

In order to insure cleanliness of clothing, each student is expected to exchange his coat and vest for a linen duster, furnished and washed at the hospital; in addition to this, he is expected to wear

such clothing as has not been worn in any pathological rooms or near infectious diseases.

Before each examination the arms and hands must be thoroughly scrubbed (warm water and soap), then with a disinfecting solution. The time for disinfection of hands varies: Halle, half a minute; Marburg, one minute; Bonn, two to three minutes; Charité, three minutes. The examining hand is not dried, and either used as it is or anointed with a disinfecting substance: Griefswald, 10 per cent. of carbolic vaseline; in the Charité, sublimate glycerin; in Halle, sublimate vaseline; in Göttingen, a mixture of iodoform and 5 per cent. solution of carbolic acid.

Should the student place his hands into his pockets, or touch objects about the room, before examining the patient, he must again disinfect himself.

In order to trace any source of infection to its origin, each student must enter his name in a book; the penalty for omission to do so is exclusion from the maternity for a long period of time.

The satisfactory results under this *régime* have become apparent when comparisons are made with the results of the maternity at Vienna, which has been governed by the theory of Semmelweiss for nearly a space of fifteen years—1847–1861—where the mortality of childbed fever has never been less than 3.31 per cent. (after Hirsch), while 1 per cent. is considered reprehensible.

In Griefswald, in the four years from April 1, 1883, to 1887, there were 576 births, with two fatal cases of puerperal fever—0.35 per cent.

In the Charité, in three and a half years—1884 to the first half of 1887—there were 4800 cases; some of these entered suffering from sepsis; with 13 deaths, or 0.27 per cent.

In Königsberg, during the year 1886, there were 405 cases; no fever.

In Halle, during five years—1882–1886—there were 1244 births, and aside from one case brought in septic, there was but one death from the fever (2), and up to the time of publication there were an additional 60 or 70 births, with no fever.

In Kiel, during four years—1883–1886—there were 673 births; no fever.

We submit some of the statistics of German work:

Extract from an article of Leopold and Pautzer (*Archiv f.*

Geburtshulfe, Band xxxviii., 1890). The fourth article on the prevention of puerperal fever. (Frauenklinik in Dresden, Germany.)

The authors feel sure that the education on the subject of asepsis is often faulty among the *midwives*, whose idea of surgical cleanliness is indefinite, not even including *clean finger nails*. This has become especially emphasized by the results of an experiment which was carried out in January, 1889. The time of service in the confinement wards was to be divided alternately between two assistants, each serving a month. This was meant to avoid overtaxation.

A. was to serve in the months of January, March, and May; B. in February, April, and June.

A. during January was continuously struggling with the results of infection, in spite of the limited number of examinations.

When B. came on, the cases of fever were remarkably diminished. March, however, brought again the same state of affairs during A.'s service—to be again checked by B. in April. From this time all cases did well.

In the year 1889 there were 1276 confinements, operative measures being necessary in 206, making 16 per cent. There were 13 deaths, or 1.02 per cent.:

1. (No. 340.) Phthisis; purulent pleuritic effusion.

2. (320.) Eclampsia; chronic parenchymatous nephritis.

3. (1198.) Eclampsia; hyperemia of pia mater and brain; anemic heart; edema of lungs; acute croupous pneumonia of the right upper lobe; fatty degeneration of the cortex of the kidney; no nephritis.

4. (1079.) Epilepsy. Sudden death during an epileptic attack; Cesarean section; child asphyxiated; brown atrophy of the heart; edema of the lungs; congestion of the brain, but no local lesion.

5. (358.) Transverse presentation, delayed diagnosis. Embryotomy; rupture of the uterus; hemorrhage. Post-mortem: atrophy and fatty degeneration of the heart; anemia; small tumor of the spleen.

6. (525.) Marked case of kyphoscoliosis; rupture of the uterus; cranioclastic perforation; hemorrhage into the retro-peritoneal cavity.

7. (653.) Rupture of the uterus before admission; hemorrhage into the abdominal cavity.

8. (1229.) Transverse presentation; embryotomy; rupture of the uterus; hemorrhage into the abdominal cavity.

9. (432.) Adherent placenta; manual removal; total relaxation of the uterus; death from hemorrhage.

10. (549.) Cesarean section (vera, $6\frac{1}{2}$ cm.); death on the seventh day. Post-mortem: general anemia; hemorrhage into the abdominal cavity.

The three remaining deaths, due to infection, occurred during the three and a half months in which injections were used.

11. (225.) Was not examined in the confinement room; investigation proved that she had been examined by another pregnant woman in the house.

The last two could be traced to clinical sources:

12. (79.) Normal labor; septic endometritis; abscess of the lungs.

13. (288.) Examined once by *externes;* a 4 cm. vaginal tear was not sewed by the assistant (forgotten?). Endometritis; salpingitis; oöphoritis; peritonitis; death.

The authors insist that their experience has led them to conclude that by *personal* cleanliness, including patient, doctor, and midwife, and abolishing all douches in normal labor cases, not only was there less or almost no rise in temperature, but vaginal and peritoneal tears became less frequent. From April, 1889, to the middle of March, 1890, 1123 confinements; 1014 had no rise above 38° C.—this in contradistinction to the year previous, 1326 cases; 1101 without fever.

There was great care taken to keep the external genitals clean.

Number of Births in the Maternity of Dresden, and a List of Accompanying Operations.

	1889.	1888.	1887.	1886.
Total number of births	1276	1369	1388	1387
Percentage of deaths (number for 1889, 13)	1.02	1.09	1	1
Percentage of infection from clinical sources	0.15	0.29	0.07	0.14
Operations for years 1886, 1887, 1888, 1889:				
Forceps, including three attempts	31	26	27	52
Version and extraction	32	31	33	35
" " " "	26	49	32	28
Manual removal of adherent placenta	26	13	8	7
Craniotomy (one in the after-coming head)	16	19	16	17
Cesarean section (one after death)	8	8	5	10
Induced premature labor	6	13	24	12
Removal of remains from abortion	11	9	21	14
Embryotomy	4	...	...	...
Reposition of prolapsed cord	3	...	...	...
" " " arm	3	...	...	...
Puncture of an ovarian tumor	1	1	...	...
Incision of atresia hymenalis	1	...	...	...
Removal of hydatiform mole	1	...	...	...
Repair of cervical tears	17	9	6	14
Vaginal and perineal rupture repaired	22	17	17	18
	208	195	189	207
Eclampsia	9	6	10	10
Placenta previa centralis	11	7	18	5
204 contracted pelves, conjugate vera, 9 centimetres	47	...	...	...
less than 9 "	157	94	...	...

From Hospitals and Polyclinics in Prussia.

Hospitals.	Collected from all clinics.		Berlin.				Bonn.		Breslau.		Göttingen.		Greifswald.		Halle.		Kiel.		Königsberg		Marburg.	
			Charité.		Artillerie.																	
	Total.	Primipara.	Total.	Primipara.	Total.	Primipara.	Total.	Primipara.	Total.	Primipara.	Total.	Primipara.	Total.	Primipara.	Total.	Primipara.	Total.	Primipara.	Total.	Primipara.	Total.	Primipara.
Deliveries, April, 1887, to March, 1888	3342	1929	...	..	1025	643	357	284	495	360	80	43	140	62	287	146	224	127	426	306	208	158
Births, April, 1887, to March, 1888 .	3401	1955	...	...	1042	654	364	285	504	265	80	43	142	62	291	148	226	127	438	210	314	161
Removed to hospitals	29	20	...	...	3	2	4	4	1	1	1	0	4	4	7	3	2	2	0	0	7	4
Number of deaths	34	25	...	...	14	11	3	2	9	5	1	1	0	0	4	3	0	0	3	3	3	0
Cesarean sections	4	3	...	...	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Death-rate of mothers	1	1	...	..	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stillborn children	1	1	...	...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Death-rate of children	2	1	...	...	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polyclinics.																						
Total number of deliveries	3837	703	...	1026	1560	400	21	4	315	89	80	26	131	16	415	97	78	13	185	52	26	6
Number of births	3930	725	...	1047	1594	405	22	4	325	91	80	26	133	16	430	98	80	13	192	55	27	7
Number of deaths	28	3	...	9	8	2	1	0	1	0	1	0	1	0	4	0	0	0	1	0	1	1
Hospitals.																						
Deliveries, April, 1888, to March, 1889	4955	2936	1555	878	1081	796	353	250	542	286	101	59	143	54	289	165	215	94	389	196	287	160
Births, April, 1888, to March, 1889 .	5035	2981	1576	889	1096	806	359	255	551	292	102	60	147	56	294	165	223	95	396	201	291	162
Removed to hospitals	111	72	81	50	2	2	14	12	4	2	1	1	4	2	2	1	0	0	2	1	1	1
Number of deaths	53	33	15	10	19	51	2	2	3	0	2	2	1	0	2	0	0	0	6	3	3	1
Cesarean sections	10	6	2	2	3	2	0	0	3	1	0	0	0	0	0	0	1	1	1	0	0	0
Death-rate of mothers	4	2	0	0	2	2	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Stillborn children	3	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Death-rate of children	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Polyclinics.																						
Total number of deliveries	4335	1014	819	197	2046	517	38	2	400	97	90	16	122	20	438	104	70	10	280	48	32	3
Number of deaths	54	7	9	4	34	8	0	0	0	0	3	3	0	0	2	0	1	0	5	0	0	0
Number of births	4464	436	846	201	2110	0	40	2	410	103	91	16	125	0	448	106	75	10	287	48	32	0
Hospitals.																						
Deliveries, April, 1889, to March, 1890	5087	3048	1534	866	1088	821	364	291	562	318	95	47	148	62	327	149	260	109	382	207	327	179
Births, April, 1889, to March, 1890	5157	3086	1655	875	1100	828	369	295	569	323	96	47	152	63	331	151	264	108	390	213	321	182
Removed to hospitals	121	75	82	53	5	4	5	3	7	7	3	2	7	1	5	3	4	1	1	0	2	1
Number of deaths	61	39	13	11	22	15	4	3	5	1	2	2	2	0	4	2	2	1	7	4	0	0
Cesarean sections	11	7	0	0	2	2	1	1	3	1	0	0	0	0	1	0	1	1	1	0	2	2
Death-rate of mothers	3	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Stillborn children	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Death-rate of children	2	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Polyclinics.																						
Total number of deliveries	4602	1150	758	166	2128	566	34	6	533	141	76	23	171	20	493	133	64	7	316	83	30	5
Number of deaths	36	4	4	0	12	0	0	0	8	1	1	1	0	0	5	1	0	0	6	1	0	0
Number sent to hospitals	120	2	62	0	48	0	0	0	5	1	0	0	0	0	5	1	0	0	0	0	0	0
Number of births	4745	401	779	0	2290	0	35	6	554	145	81	24	175	0	507	135	67	0	327	86	30	5

THE ESSENTIAL QUESTION OF DRAINAGE IN PELVIC SURGERY.

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Drainage has long occupied in surgery the position of an efficient and established procedure. It was known in the days of Hippocrates and Galen, and practised by surgeons in the last century. In 1859 Chassaignac published a systematic work on drainage, and introduced into practice the rubber tube. Kœberle, of Strassburg, devised the glass tube used in modern pelvic surgery. I had the privilege a few years since to see in that eminent surgeon's study some of the first tubes used by him. Keith modified the glass tube of Kœberle into the straight open-end tube now in use. Capillary drainage by gauze was introduced by Mikulicz, and has been applied in various modifications.

The advantages and safety of drainage in pelvic surgery have been so frequently discussed and so thoroughly demonstrated in practice, that it would seem superfluous to recite anew the value and importance of the procedure, or to urge its general adoption by those doing this large and critical class of operations. Yet there seems to be such diversity of opinion as to its efficiency among prominent surgeons, whose teachings are of widespread influence, and such differences as to its range of application, together with such chimerical views as to its dangers, that the question demands consideration. Indeed, it seems to have become fashionable of late to speak of drainage apologetically, and in more than one instance surgeons have publicly declared, that to resort to drainage after pelvic operations is a confession of imperfect operative work or faulty technique. As an illustration of the views of certain operators, I make the following quotation from the published remarks of a prominent teacher and practitioner of

gynecology of the city of New York: "In my own laparatomies, numbering nearly two hundred, I have used the glass drainage-tube in only two, and both patients died. On the other hand, in as many as seventy-five consecutive laparatomies without the use of the drainage-tube, not one patient died. I use iodoform gauze, but do not allow it to come up through the incision. I carry the end through the vaginal vault behind the uterus," etc. In another instance, a prominent Eastern surgeon, while discussing this subject in one of our national societies, opposed the use of drainage, declaring that the glass tube might be a source of danger and death by punching holes in the intestine. Another surgeon connected with the gynecological department of a large Eastern hospital, writing upon this subject recently, says: "Now that the conditions underlying the infection of wounds are so much better understood, and it is becoming recognized that the drainage-tube too often permits the entrance of pathogenic bacteria, we can understand why its general use in abdominal surgery has been abandoned by many operators."

These public utterances would scarcely elicit serious consideration from those accustomed to the use of drainage in pelvic surgery; but going out to the profession are liable to disparage a most efficient, and in my belief, essential feature of successful operative work. The importance of drainage in pelvic surgery, its necessity for dealing successfully with large classes of cases, its simplicity and safety, are no longer experimental considerations, but are facts based upon sound pathological principles and demonstrated beyond question by the stern logic of results in the hands of the most successful operators. It is important that we give the question fair and just consideration, both as to the principles upon which drainage is based, the practical application of the same, the advantages to be derived from its use, and the dangers, if such there be, from such practice.

Opposition to drainage in abdominal surgery is undoubtedly due to fear of the tube as a source for introducing septic infection. It is regarded by many surgeons as an open danger far greater than the danger from within. Until it is realized that these dangers are due altogether to improper use of the tube, it is useless to attempt to decide the question by reference to the work of various operators. The necessity for drainage may depend upon the skill of

the operator, since rapidity and thoroughness in operating may enable some surgeons to dispense with drainage where others would find it a necessity. By limiting exposure of the peritoneum; by careful enucleation of morbid growths and disintegrated tissues; by constant vigilance in securing bleeding-points and cleansing from effused fluids, one operator may succeed in certain cases where others would fail. Such are the operators, like Martin and Olshausen, so frequently mentioned by the opponents of drainage. Another class of operators, like Bantock, Tait, and Price, use the tube constantly without any fear whatever of danger from it.

A third class of operators dread the tube and dread the absorption of retained fluids, and endeavor to drain some other way or take the chances of absorption and indirect drainage by purgation. The last occupy a position both unscientific and unsatisfactory. A patient consideration of the situation will, I believe, drive any thoughtful person to one conclusion, which it is the object of this paper to demonstrate. If one class of surgeons can use drainage in a long series of miscellaneous operations under all manner of circumstances, and with a mortality no greater than obtains with those who discard drainage, then surely the drainage-tube cannot be a source of danger. Moreover, if some surgeons who use the tube occasionally have a greater mortality with it than without it, then it is fair to infer that this class of surgeons do not use it properly. Hence, all attempts to decide the merits of drainage by reference to the practice of this or that operator should be abandoned, and attention directed to the subject under consideration, considering alone the object of drainage and the best method of attaining that object with efficiency and safety. That drainage after peritoneal operations is essential in a large proportion of cases; that it is an advantage in many cases wherein it is not absolutely essential; that, when properly applied, it is without danger, and does not complicate in any respect the subsequent progress to convalescence, can be established both by scientific facts and practical results.

The principles underlying the use of the drainage-tube in the treatment of wounds are logical and practical. By the removal of serum and blood, tension is relieved and material prone to septic changes removed. Abscesses, superficial and deep, are cured by rupture and discharge of their contents. Incision, evacuation,

and drainage are but imitations of Nature's own method of cure and prevention of general septic toxemia. In no region of the body are these universally recognized principles of surgical practice more effectively demonstrated than in the peritoneum. This membrane, so rich in the function of absorption, is revengeful as well as tolerant. By removal of fluids and débris after operation the membrane is relieved of material prone to decomposition. These septic changes, if such condition is not preëxisting, are as a rule caused by material introduced from without, but may also be produced by infection through the injured or distended coats of the intestines. The healthy peritoneum absorbs with great rapidity, and this function is materially increased by the modern method of using saline purgatives after operation. But it is exceptional that operations are performed upon a healthy peritoneum, and effused fluids may not be absorbed before decomposition occurs. Moreover, complete removal of every particle of morbid growths and diseased tissues in the course of operations is not possible.

In operations where there is existing peritonitis or ascites, drainage is indicated. In this class of cases drainage is, *per se*, essential to restoration of a healthy condition of the membrane. This is especially true of cases of tubercular peritonitis. In cases of suppurative peritonitis two or more tubes should be introduced so that an extensive area may be drained, and the membrane flushed if repeated irrigation be indicated.

In operations where septic matter has escaped into the peritoneum, especially pus, and where portions of tumors and masses of lymph are necessarily left, irrigation will be required, and purulent fluids attenuated by dilution can be removed by the drainage-tube.

In cases where the coats of the intestine are stripped, or the bladder imperceptibly injured, the drainage-tube is essential to successful results. In my own experience I have saved patients developing through the drainage tract fecal and urinary fistulæ, who would inevitably have died but for such drainage.

When large quantities of blood have been effused into the peritoneum, as in ectopic pregnancy, drainage is the efficient means of perfecting the operation. I have removed large quantities of blood through the tube for days after operation.

When separation of adhesions leaves extensive denuded surfaces oozing serum and blood, or bleeding is reasonably to be expected,

the tube is indicated. The glass tube, frequently emptied, has the power to arrest moderate bleeding, and will also give timely notice to nurse and surgeon of serious hemorrhage requiring operative hemostasis. Frequent cleansing and drying of the peritoneum acts as a hemostasic. When the operation is necessarily prolonged, with extensive manipulation, excessive secretion will follow, and drainage is indicated. Cases of malignant disease require drainage when subsequent infection is probable.

In certain cases the peritoneum will be found thickened and unfit for rapid absorption of fluids; septic changes may occur before contained fluids are absorbed. Drainage is necessary in these cases.

In old subjects, in patients enfeebled by prolonged pressure and impaired nutrition, and in those of cachectic condition, the emunctories are impaired and drainage will be required when it might safely be omitted in robust subjects.

When operations are done upon patients in profound shock, and when for any cause operations are prolonged, valuable time may be saved by irrigation and drainage. I am sure I have succeeded in saving patients in this way who would have succumbed had minute attention been given to bleeding-points and sponging. By inserting the glass tube, the suturing may be done while an assistant empties the abdomen with a syringe through the tube, and the patient is hurried to bed. In this way drainage may be used to abbreviate anesthesia and operation, and thereby prevent shock. I cannot too strongly emphasize this important function of the drainage-tube in abbreviating operations. It cannot be overestimated in importance, and will enable the surgeon to save many lives which otherwise would be lost.

After operations for pyosalpinx, with or without communication with bowel or bladder, and after operation for perforative appendicitis, drainage is a necessity, which cannot be disregarded without great risk of life. These forms of pelvic abscess cannot be successfully treated without drainage. If one has ever examined the interior of such an abscess after it is emptied, and observed the layers and shreds of lymph and sloughing tissue, I do not see how the necessity for drainage could be questioned. Indeed in certain classes of cases in pelvic surgery it is unsurgical to discard drainage.

Turning now to the objections which have been urged against drainage, I will notice, first, the frequent objection that the tube is quickly shut off from the general peritoneum. It is probable that in cases of average cleanliness the general peritoneum is shut off from the tube in sixty or seventy hours. That the time of drainage from a large area varies in different cases, every surgeon who has successfully used the glass tube must be convinced. I have seen the tube run freely for five or six days, giving unmistakable evidence of draining the field of operation; and in some cases have observed successive diminution and increase of discharge which could not have occurred had the tube been circumscribed by adhesions. With the patulous tube resting in the hollow of the sacrum, the patient lying on the back, fluids percolate between the intestinal loops and gravitate into the sink of Douglas's space. Frequently repeated cleansing by the suction of a long-nozzled syringe will remove large quantities of fluid débris within the first twenty-four hours. When the tube is properly placed and manipulated, I am sure it can be readily demonstrated that it drains for days effectively.

The objection which has deterred so many surgeons from using the drainage-tube is the fear of septic infection—septic peritonitis. I could adduce a long series of cases in my own personal experience to show that there is no risk whatever of such infection if the tube is properly cared for, and any nurse of neatness and intelligence can quickly learn the proper method of cleaning and taking care of the tube. Further on I shall endeavor to indicate how the tube should be managed.

It has been claimed that adhesions around the tube may form a fibrous band along the drainage-tract which may strangulate the bowel and cause obstruction. I have never known this to occur, and in a number where it became necessary to subsequently reopen the abdomen I have looked for such bands and could never find them. If the tube is clean and no irritating substances are introduced into the tract, the adhesions are thin and quickly disappear. Even firmly organized fistulous tracts disappear in a comparatively short time after they cease to discharge.

I have heard it claimed that shreds of omentum or adhesions could become incarcerated in the perforations of the tube and prevent its easy removal. I have never seen such fixation of the tube,

and if the tube be frequently lifted and gently turned by the nurse when cleaning it, such incarceration cannot occur.

Should prolonged discharge persist after removal of the tube, forming a sinus, it cannot fairly be attributed to the irritation of the tube. The sinus is the result of a pathological condition along or near the tract of the tube, and this of itself makes an indication for drainage. Otherwise there would be an accumulation within the abdomen necessitating an outlet. When the foreign substance, which may be disintegrated tissue unremoved in the operation, or an infected ligature, comes away, the sinus will quickly close.

Fecal fistulæ are by no means infrequent after abdominal and pelvic operations. The intestinal coats are frequently injured and torn in separating dense adhesions. Often the intestinal coats are devitalized in close proximity to suppurating surfaces to which the gut becomes fixed by adhesions. The separation of adhesions under these circumstances is readily followed by fecal fistula. The drainage-tube serves a most valuable purpose in these cases by providing an outlet for evacuating effused contents of the bowel. Only extreme disregard of the necessary precautions for placing and care of the tube could produce an opening in the bowel.

To the drainage-tube has, at times, been attributed the occurrence of ventral hernia subsequent to abdominal section. In my own experience I have not known it to occur, save in one case in which the tube was used. It has been known to occur after operations in in which no tube was used, and I believe it is quite generally conceded to depend more upon imperfect suturing of the parietes than any other cause. If the suturing be carefully done, and the tube be of proper size and properly manipulated, the risk of ventral hernia is not increased by the presence of the tube.

In conclusion, I will endeavor to express my conception of the proper method of drainage in pelvic operations. Capillary drainage, either by gauze or wick, has only a limited sphere of usefulness. It is admirably suited for the open treatment of an abscess cavity, and in cases where it is necessary to combine hemostasis with drainage. It drains serum, and fibrin is entangled in the meshes of the gauze, forming strong adhesions to tissue surfaces. Drainage by gauze is limited to the surface touched. This method is especially applicable where superficial closure of the parietes must be prevented in order to secure healing from the bottom.

No method of drainage in pelvic surgery is comparable to the glass supra-pubic tube, aided by suction. The tube should be smaller than Keith's modification of Kœberle's tube. The modification as used by Price is well-nigh a perfect tube. While the length of the tube should vary to suit the depth of the pelvis, the diameter should be about one-half of an inch, with open end and numerous perforations. (Fig. 1.)

Fig. 1.

The Price drainage-tube.

The tube should be placed in position with great care. Passing two fingers to the bottom of Douglas's space, or the cavity to be drained, the intestines are carefully held aside and the tube placed in position, the distal end being in the lower angle of the incision. Care must be observed that no loops of intestine are beneath the tube. While the surgeon is closing the incision and completing the toilet, an assistant must place his finger on the tube and gently but firmly hold it in position. The tube should be carefully emptied before the dressings are fastened, to make sure as to hemorrhage and prevent overflow. A piece of dental rubber-dam about twelve inches square, punctured in the centre, should be passed over the collar of the tube. A handful of absorbent cotton or gauze should be placed over the end of the tube, and the four corners of the rubber brought together and pinned. A towel is carefully placed over all to prevent the patient's hands or the bed-clothing from displacing the dressing.

The object of drainage is to dry, as quickly as possible, all the peritoneum around the bottom of the tube. As already indicated, fluids gravitate toward the sink in the hollow of the sacrum while the patient is on the back. To accomplish this, the outward flow must be constantly encouraged and made as free as possible. This flow is prevented when the tube is filled with fluid and allowed to remain. When this is permitted, the fluid within the peritoneum is subjected to a backward pressure equal to the weight of the column of fluid in the tube. In order to facilitate rapid occlusion of the general peritoneum from the drained area, and perfect

drainage, the tube and tract must be frequently cleaned. This can best be accomplished by a long-nozzled syringe. An addition of a small piece of rubber tubing may be attached to the nozzle, if necessary, to reach the bottom of the tube. (Fig. 2.)

Fig. 2.

When the drainage is profuse the tube should be emptied at first every fifteen minutes, gradually increasing the interval as the quantity of discharge diminishes. The tube should be cleaned at least once every hour during the first six hours after the operation. Every hour or two, when cleaning the tube, the nurse should gently elevate, in a minute degree, the end of the tube and rotate it, so as to keep it free and patulous. The dressings should be so arranged as to fit around the collar of the tube snugly, and if soiled by overflow (which may be avoided by care), they should be changed. The nurse should be taught to observe the same detailed precautions in the care and cleansing of the tube as in doing any other essential part of an aseptic operation. The nurse should never leave the patient alone while the tube remains in the abdomen. The time for removal of the tube is when the discharge ceases; this, of course, will vary. It is very exceptional that it is required longer than thirty-six or forty-eight hours. When the tube is removed a saline purgative should be administered, so that supplementary drainage may be had through the intestinal tract. When necessary, a small rubber tube may be passed through the glass tube and the glass removed, leaving the rubber in the drainage-tract by way of precaution. This should be done always when the tube is removed under thirty-six hours. In more than one instance I have known retention of fluid at the bottom of the pelvis, and reopening of the tract after its closure, to follow neglect of this precaution. When the rubber tube is made to replace the glass tube in this way, it should be drawn up and cut off a half-inch or more daily, so as to secure gradual closure from the bottom.

When peritoneal drainage is conducted in this way it is thoroughly efficient, and I have never known septic infection to occur

thereby. I have not deemed it necessary to consider in this paper pelvic drainage by vaginal puncture, as it is both inefficient and dangerous—inefficient because rubber and gauze will be obstructed and glass is impracticable; dangerous for the reason that the tube and opening cannot be kept clean.

DISCUSSION.

Dr. Edwin Ricketts, of Cincinnati.—Mr. President: I have listened with great interest to the paper given us by Dr. McMurtry. I was present at the meeting he refers to, when a prominent teacher and member of our profession spoke so positively against the use of the drainage tube. As Dr. McMurtry has stated, it is quite important to use the drainage-tube correctly. Let this represent the cul-de-sac (illustrating on blackboard) in which the drainage-tube is introduced down to the bottom. To leave a drainage-tube with its end sticking up above, as you see, is not the proper way to use it; on the other hand, in the placing of a drainage-tube the collar, so to speak, rests above the skin surface and the lower end of the drainage-tube against the bottom of the cul-de-sac. Whoever adjusts it in the former manner is going to have trouble, especially if he is not careful in applying the bandages. In the use of a drainage-tube when the bandages are applied in the manner which you see represented on the board, very little pressure is placed on the drainage-tube; and another item of importance is, that in the adjustment of these bandages or the bedclothes which cover the patient, great care must be exercised by the nurse in regard to the pressure brought to bear on the drainage-tube. In the adjustment of the drainage-tube the lower end *should not touch the bottom of the cul-de-sac*, and it should occasionally be twisted. I was in hope that the author would go further into this matter of drainage, so that I might have something to say in connection with the use of the drainage-tube as relates to the proper drainage of the intestinal canal, but as that subject is expected to come up for discussion at a later period of the meeting, I may have an opportunity to say something on it then.

Dr. Joseph Hoffman, of Philadelphia.—Dr. McMurtry wishes me to say something in regard to this subject. It has been talked about so much that I feel I can hardly contribute anything original. Three years ago, in the Burnet House, in Cincinnati, I was walking

through the corridor with a gentleman, and somebody from Cincinnati came up to him, put his arm around him and said, "You were talking of drainage today. How long can you leave a drainage-tube in a woman's abdomen before it stinks?"

Dr. Reed.—That gentleman, I am sure, does not live in Cincinnati.

Dr. Hoffman (resuming).—There are common-sense objections to drainage. I do not know who the gentleman was who read the paper against the use of the drainage-tube referred to by Dr. McMurtry, but I am going to guess two things: I am going to guess that he lives in New York, and that his record has been bad in the two hundred cases he has published. It has only been a little while since our New York brethren have come to believe that there is such a thing as pus in the pelvis. They made light of Mr. Tait, and called him all sorts of bad names, because, in their opinion, pus in the pelvis did not exist. Now they have come to admit it. They criticised Mr. Tait still further for using drainage to which he attributes the betterment of his results from six to ten per cent., and they gave him no credit for his opinion, although he has done more for abdominal surgery than perhaps anybody else in the world. As Dr. McMurtry has well said, when we come down to results, those who use the drainage tube certainly have the best. Martin rejected it, and look at his results! Look at his vaginal drainage, and you will find some reason why we must not take his dictum of drainage. So it has been in other quarters of the world. We find men rejecting the glass drainage-tube and using gauze. The use of gauze in drainage where there is simple hemorrhage is a logical one, because it will subdue the hemorrhage by pressure, but its use in the presence of pus is bad. It cannot be anything else, because it will not drain pus, and the solid portions of it will remain. Gauze crowded in the pelvis after an appendicitis operation will block up the pus, or where there has been a suppurating kidney it will block up the pus.

Now in reference to the tube, it will be necessary for me to use the blackboard to illustrate my views. The perforations of the tube must be small. When you put in a tube, do not be afraid for the first half-hour to put it down to the bottom of the cul-de-sac, because it cannot be too far down to do its work well. It must get at the bottom of the mischief. During the first half-hour the tube, of course, will have been cleansed. It will be cleansed at least two or three times if there is excessive bleeding, *i. e.*, from five to fifteen minutes during this time. Be sure to put it at the bottom, and direct the nurse to gradually raise it

one-quarter of an inch with a little turn, which will keep it from causing perforations, and you will have no trouble on that score. Nobody proposes to begin a bandage at the top. (Here Dr. Hoffman illustrated his method of applying the bandage on the blackboard.) The bandage used is a many-tailed bandage, three or four on each side, with enough width of centre to it to keep it from rolling on the woman's back—say, six inches across. It is perfectly clear to me how such a bandage as that can be arranged so that none of these turns will strike the top of the tube. One will come around from the top, and another across from the top in the manner that you see on the board.

A word as to how to clean this tube. Some take a piece of cotton, and go down the tube with a pair of forceps. I have known forceps to be invented for that purpose. Invention has been the bane of abdominal surgery. Each one has wanted to design some kind of a tube, generally inventing something that is of no use. A syringe will do two things. If there are pieces of lymph in the bottom of this tube, and I put in a long-nozzle syringe, the water will come in the syringe. The suction will hold the bottom of it, and you bring up pieces of lymph which otherwise would remain in. The suction power is an important factor in cleansing a drainage-tube. If you allow lymph to settle and stay in hour after hour without cleaning it out, of course your tube will become filled up and the material will become solidified. I have seen a tube removed by an operator filled up with lymph which was only cleaned once in three or four hours, and the drainage was blamed for it. It was simply the faulty application of methods to keep the drainage-tube clean.

Now what I have said in reference to gauze will apply to wicks and the like. There is nothing that drains so thoroughly as the drainage that cleans at once. There is no reason why we should use gauze or cotton. If I have a vessel of water here, and I want to drain it by wick, before the gauze will drain a particle of water from this vessel the wick must be saturated, or the fluid will not be drained off. Remember that this saturation is constant, and there is a flow just as soon as I introduce a substance that will become saturated. Remember that it is only water which comes out. Remember, just as soon as water comes in, I have in my wick old matter remaining, a chance for infection, and we are retaining in our drainage what we are trying to get rid of; consequently we have suppuration. We have trouble in those cases in which we use lint, cotton wick, and the like. I do not like lint or gauze—they make adhesions. Take any gentleman here, and if he will tell me he ever used lint or gauze in

packing a pelvis and did not have trouble in getting rid of adhesions, I would be glad to have him speak right now and contradict me. I want to know it. I am here to say simply what I believe to be facts. Why is this so? You all know just as well as I do. You have fibrin in the meshes of your lint or gauze; it controls hemorrhage, but if you do not mind what you are doing you have a clogging up again. There is the other horn to the dilemma. Gauze is a valuable adjunct to operations on the viscera where you pack it around, as, for instance, in an abscess of the liver. By reason of circumstances you cannot stop to sew the liver up to the abdominal parietes; but if you pack gauze around the adhesions of the abscess in the liver through the abdominal incision, you know the liver is then fast to the abdominal wall. It is simply a physiological process. It is a process that those who come to gauze ignore altogether. They ignore it because of its seeming simplicity, which does not exist. They cannot understand the simple, ordinary, common drainage-tube.

Dr. Frank A. Glasgow, of St. Louis.—Dr. Hoffman condemns the use of gauze in drainage because, he says, it causes adhesions. He has not mentioned those cases where adhesions are exactly what we want. If you have a deep abscess among the intestines, or a case such as I have had of a suppurating fetus deep in the broad ligament, you cannot get that abscess cavity to the surface. It is absolutely impossible. You must go through the healthy intestines; you are not certain of preventing subsequent suppuration in that cavity. What can you do? If you put a tube into the cavity, then close the cavity up, trusting to the drainage-tube, you are absolutely certain to have the intestines come in contact with purulent material. Then you have peritonitis. You certainly will have adhesions, but in this case it is the adhesions that you want. The intestines themselves form a wall which connects the cavity with the external parts; you want adhesions there—you must have them; and in such a case gauze is the only thing we can use. Dr. Hoffman, I have no doubt, will agree with me in such cases, although he did not mention them. He should have mentioned them in speaking of abdominal operations. There are cases in which you cannot be certain that you have succeeded in rendering them aseptic. These are the cases in which we desire adhesions. These are the cases in which we *must* use gauze.

Dr. Charles A. L. Reed, of Cincinnati.—I shall occupy but a few minutes in discussing this subject. I have on previous occasions spoken very generally and freely of the use of drainage in my own practice. When I last had occasion to discuss this question, I stated that in my

hospital work I had not operated upon a single case for over a year in which I did not use a drainage-tube. When I did use the drainage-tube in cases in which the sequelæ proved it was not necessary, its use placed me on the safe side. I have since made a single exception to my rule. It was a case of appendage operation in which there was considerable soft tissue. There was no oozing; I had a dry pelvic cavity to deal with. I applied a ligature, leaving a considerable button to prevent slipping. I did not introduce a drainage-tube in this case. My patient was operated on at her home; the surroundings were not favorable, and the patient was in the hands of a nurse who was comparatively inexperienced. I thought, everything considered, it was safer to close up the cavity entirely. The patient died of undetected hemorrhage; and why? Because, after the abdomen was closed up, that ligature from its continued pressure cut its way through vessels located in the soft tissue of the pedicle large enough for the patient to bleed to death. The nurse noticed the vacillation of the pulse, sent for me and also called my assistant, but by the time I reached her bedside the patient was perfectly exsanguinated. In that case I did not give myself and my patient the benefit of the best doubt, although I thought I was doing so in saving her from the possibility of infection from without through unsanitary surroundings and at the hands of an inexperienced nurse.

There have been a few instances in which I have used capillary drainage. In one instance it served the purpose admirably. There was one case I drained in the ordinary way for about three days. It was a case of pus tube in which there was an unfortunate rupture in the effort to get it out. I drained for about three days, then closed. Everything appeared to be clean. On the second day following there was tympanites and other evidence of septic mischief in the peritoneal cavity. When I got to my patient it was not fifteen minutes before I had my fingers in the abdominal cavity, and there was a copious flow of fluid. I slipped in a glass drainage-tube, but it seemed to me that the discharge required that constant attention that I did not appear to be able to get from my nurse, and in that case I extemporized the apparatus described by Dr. Morris last year at Washington, of protecting the parietes from adhesions by surrounding some lint with some of the Lister protective. Simply enveloping the gauze had prevented the adhesions spoken of. I got constant drainage, my patient got well rapidly, and it simply showed what drainage will do in disposing of liquid elements with an apparatus so simple, and kept in position for several hours, giving me complete drainage.

I feel that there is but little else to add. I think if I were operating

upon a case at a distance with all the surgical conditions favorable, with no unsanitary surroundings and inexperienced attendants, I would be tempted to close up without drainage, although, as I have just narrated, in one instance I did do it and lost my patient from hemorrhage.

Dr. Rufus B. Hall, of Cincinnati.—The subject has been debated so thoroughly that I do not feel there is very much for me to add. What I shall say will be more in the nature of giving a personal experience in the use of the drainage-tube, and stating what results I have obtained. My experience is that we can accomplish all by the use of the glass drainage-tube that can be done by any other form of drainage in pelvic and abdominal surgery, with a minimum amount of injury and risk to the patient; that is, we can accomplish with the glass drainage-tube all that can be accomplished with gauze, lint, catgut, and the like. But, as has been so graphically pointed out by Dr. Hoffman, to have the best results from the use of the drainage-tube we must know how to care for it properly. This cannot be attained by employing the drainage-tube in one, two, or a half-dozen cases. It is the *study* and *care* that come from a long experience in this work through which we may hope to make a success of the drainage-tube. Unless operators are willing to bestow that care, or employ a competent nurse or assistant who is willing and will do it properly, they cannot expect good results. If we attend to the drainage-tube faithfully and see that it is carefully applied, we are not likely to have the complications mentioned by the essayist—hernia, etc.—from the use of the drainage-tube. I think many objections to the use of the glass drainage-tube by the men who rarely employ it, can be answered in the simple statement that the tube is not *cared for properly.* The idea of letting a drainage-tube fill up with lymph and blood-clots, the patient dying from an accumulation of pus in the abdomen, and then saying the tube is no indication of the condition of affairs, is begging the question, and it tells plainer than any words I may utter the neglect of the drainage-tube. It is not the fault of the drainage-tube, but it is the fault of neglect in caring for it properly.

I do not see the necessity of using gauze to facilitate drainage. There are conditions in which we can substitute it temporarily, namely, when we desire to remove the tube, but must still have an opening through the parietal wall; then a small piece of gauze through the abdominal wound would not be an objection. A thin rubber tube, two inches long, would prove of equal service, if not better.

In referring to personal experience, Dr. Reed voices my sentiments,

in a measure, in reference to universal drainage. It is generally known that I always drain. I rarely leave a tube longer than fifty hours. I have drained every case operated on since 1886, with the following exceptions, namely: three cases occurring in my practice within three months. The cases all proved to be malignant disease, where simply an exploration was made of not more than an inch and a half in length. One patient was considered to be in a dying condition, and was very feeble. The other two were in good physical condition. In none of these cases was a drainage-tube used. None had pus, the wounds united without even a blush of redness of the skin, but in neither case was the convalescence so easy as in cases drained.

Dr. Willis P. King, of Kansas City.—I think this is an important subject and one that cannot be discussed too much. As a matter of course, every man's knowledge is based to a greater or less extent upon his experience. To drain or not to drain! that is the question. It is probably true that the truth here lies between the extremes, as it generally does in most conditions. However, I desire to say that I believe the man who drains every case is a better surgeon and will have better success than the man who drains in no cases. I want to say, furthermore, that I do not believe all cases need draining absolutely, but that we cannot always tell what cases should be drained and what cases need not be drained. Thus we come back to the old axiom, "When in doubt, drain." Dr. McMurtry has told us that in careful hands it can do no harm. I have never had any trouble in drainage. I am in the habit of draining all my cases where I think the indications demand it. Out of 28 laparatomies for diseased tubes, ovaries, cystic degenerations, and the like, I have drained perhaps six or seven times. In 19 laparatomies for the removal of tumors, I have drained three or four times, making altogether, out of 47 cases perhaps eight or ten times in which I have drained. Once I did not drain when I was sorry I did not. I was in the country, and my assistant who put up my outfit failed to put in anything I could use for drainage. I lost the patient. I believe I lost her because I did not have anything to drain with. I sent the attending physician a drainage-tube by mail, and instructed him what to do, but he refused to do what I ordered. The patient died.

I am a little afraid of glass on account of its being so much harder than the tissues which surround it. I was informed a number of years ago by an operator in this particular field that he had punctured the bladder with a glass drainage-tube. I use a rubber drainage-tube. I happened at one time to have nothing that I was willing to use for a

drainage-tube except the new-fangled stomach-pump with something like a Davidson's syringe in the middle of it. It is made of soft rubber, the walls of the tube are very thick, and it is very flexible, but will submit to such pressure as is brought to bear by the tissues, and yet will not collapse. I like it better than glass. I have been in the habit, when I have had cases where the operation was simple, where I have got through quickly, where I did not have to irrigate, of closing them up without drainage. My patients got up without difficulty. I think they have gotten up just as well as if I had put in a drainage-tube. Where there is any possibility of infection, as after the removal of pus tubes and where adhesions are liberated, it is best to irrigate and then put in a drainage-tube. In regard to the manner of treating it afterward, I feel that the drainage-tube ought to have attention very often. I have instructed my nurses to look after it every twenty minutes. I do not know, after hearing Dr. Hoffman, but that I shall say hereafter every ten or fifteen minutes. I generally make a flap dressing, put the gauze above and below, then make a flap of six or eight thicknesses to go over the tube. When necessary to attend to the tube, open the bandage, turn the flap back, and withdraw whatever fluid there is in the drainage-tube. If the cotton has become soiled it is removed and fresh cotton applied and the flap put over again; thus it is not apt to become soiled if the nurse attends to it, and it is taken away by proper instruction. When I cease to get any fluid, I remove the tubes. I do not believe that glass drainage-tubes, with lateral perforations and with the bottom closed, are proper instruments to employ. If drainage is needed at all it had better be good drainage. I am satisfied that neither gauze nor lint, where you have to trust to capillary drainage, will drain anything but water. It will not drain lymph. I would not trust it at all.

Dr. William H. Myers, of Ft. Wayne.—I do not intend to discuss the subject of drainage, but merely wish to state that I am in perfect accord with the views presented by the essayist. It is seldom that the subject has been delineated so clearly as it has been to-day. I would ask the question, What is the object of drainage? It is to remove the soil in which the germs most likely will germinate, for when we speak of germs they are living things. Non-vitality is their food, and vitality is their death. I can conceive of cases in which the patient is in a condition to resist the invasion of germs. It has seemed to me that recently we are performing operations much earlier than heretofore, when Keith, Atlee, and Peaslee almost always waited until the patient's health was impaired; then the invasion of germs was

much easier than at the present time. I drain invariably in every case.

Dr. L. H. Dunning, of Indianapolis.—I do not wish to say very much upon the subject of drainage, but it strikes me that a wrong impression may go out as to the value of gauze in drainage in many instances, from the discussion that has been made so far on this subject. I wish to relate a bit of personal experience which has taught me some of the possibilities of gauze to drain as well as a means of relieving hemorrhage. Some months ago I was called upon to remove an intra-ligamentous cyst. These cysts, as a rule, have very many adhesions. I removed a pus tube also, and as a result of my work we had a profuse hemorrhage to deal with, which we were unable to control for some time by sponges dipped into hot water and irrigation. Finally, the hemorrhage yielded. In about an hour and a half thereafter I was notified by the house physician that the patient was bleeding. I went to the bedside and removed about two ounces of blood. I opened the wound and searched for bleeding-points, but found none. Immediately the patient sank rapidly. The only thing remaining to do was to pack with gauze. We did that; she rallied well, and made an excellent recovery. Our experience in this case taught us that the gauze must have had something to do in the way of drainage, because the first three days we were compelled to change the dressing frequently. I think it is bad teaching to assert that all cases, as may be inferred from the remarks made, not drained may die. One of the preceding speakers has said that he drained all but one, and that case died; the inference being that if we do not drain all our cases, they may die. In 33 of my cases with but one death, the majority were not drained at all simply because I saw no occasion for it, and they made good recoveries. It is not just for us to send out the impression that cases not drained will surely die.

One other point: that is, in relation to the drainage-tube in inducing ventral hernia. Out of about 80 cases it has been my ill-fortune to have 5 cases of ventral hernia, in 4 of which a drainage-tube was used, and 1 in which it was not. The cases were in other respects treated exactly as those that were drained. I think we are liable to have ventral hernia if we use gauze packing, yet in many instances where we have a profuse hemorrhage and are unable to see the bleeding-points, we may use gauze with excellent results. I think ventral hernia is more likely to occur where it is used. We have separation of the peritoneum and fascia, and as these parts are never brought into apposition again hernia is more apt to occur.

Dr. W. P. Manton, of Detroit.—It seems superfluous to say anything more on the subject of drainage. I simply rise to indorse what Dr. McMurtry has said, and to express my appreciation of his paper. I use drainage in the larger proportion of my cases. I do not use it in all cases. I cannot say that I ever lost a case as a result of not using drainage; but still I would rather drain all cases than lose one as a result of failure to drain.

There has been one objection made to the use of the drainage-tube which has not been brought out in the discussion, and that is the influence of atmospheric air which, passing through the tube, and carrying germs into the peritoneal cavity, sets up an inflammation. At the last meeting of the Michigan State Medical Association this point was brought up, and a former member of this Association said that he had invented an air-sifter which he used in all cases. My friend, Dr. Ross, happened to be present, and I was very glad that he had made a series of experiments which enabled him to positively refute this idea. The entrance of ordinary atmospheric air into the peritoneal cavity, in my experience, makes no difference as regards the result of the operation. If the abdomen is dressed in the manner already described, which is the method used by Bantock, Thornton, and Meredith (I am not sure about Sir Spencer Wells), it is impossible for the tube to rest upon the bowel and cause perforation. The rubber dam keeps the tube off the bowel, and any impingement is impossible. This question of drainage is so important that I am very glad the subject has been brought up, and the opinion is to go out in favor of drainage. Yet the subject is so vital a one that I am afraid, in spite of all that has been said today and however much we discuss it, the question will never be settled. When such men as Sir Spencer Wells write and speak as they do in regard to drainage and flushing the peritoneal cavity, their opinion has great weight with a large number of the profession. It is only for the younger men teaching in schools and outside, to constantly urge this practice, and if we so do, then the question will ultimately settle itself.

Dr. A. H. Cordier, of Kansas City.—It would seem to those of us using drainage in abdominal and pelvic work almost useless to discuss this important subject of drainage, but we all know the great diversity of opinion existing in the minds of various writers and operators of *how*, *where*, and *when* to employ this agent for its greatest good. We know that the articles in the latest text-books on this subject are deceptive or incomplete. The men who condemn drainage are operating

with a 12 per cent. mortality. It should be 3 to 5 per cent. in similar cases, with the intelligent use of the tube.

The questions of irrigation and drainage seem to me to go hand-in-hand. It seems as though it is impossible to separate the two. Dr. McMurtry has discussed the field of drainage very beautifully, yet he has not specified in his article all the cases demanding drainage. We have in extra-uterine pregnancy with rupture and great intra-peritoneal hemorrhage a special indication for drainage. It is true the peritoneum can digest or absorb aseptic blood-clots, and even a three months' fetus, yet you can never foretell whether the clots remaining are aseptic or not. It is reasonable to suspect and act as though the fluid was septic. It is a fact often demonstrated that the impregnated tube, in the majority of instances, is diseased to an extent that its contents are capable of infecting the free fluid in the peritoneum. Irrigation here should always precede the use of the tube, as it washes out many clots, and the hot water brings the patient up out of the condition due to loss of blood (so-called shock). A part of the fluid should be permitted to remain in the cavity, as much of it will be absorbed by the peritoneum; the remainder can be removed through the tube. The same principles hold good in draining the peritoneum that are applicable to other parts of the body.

In regard to the physician referred to by the essayist who spoke against the use of the drainage-tube, I will say that in the Obstetrical Society of Philadelphia I heard a gentleman make the remark that he had only one drainage-tube, and carried it to every patient he operated on; that he always felt better when the tube was carried away in his pocket. The same man denied the existence of pus tubes. He said it was strange that the cases of Dr. Price and other surgeons in Philadelphia were nearly all pus cases; that his cases were not pus cases. I saw him operate on a pus tube case, and saved his patient. He used a drainage-tube. I have seen within a month an operator remove an ovarian abscess, pyosalpinx, with rupture, and escape of the pus into the peritoneal cavity, and close the abdomen without using a tube. I predicted at the time the patient would die, and I may add that my prediction was correct. The patient's temperature ran up, and she died of systemic infection. Anyone having seen Drs. Price and McMurtry use drainage—the fathers and exponents of drainage in this country, one truthfully might say—will do nothing except to commend it, and will use it ever afterward.

It is a fact long since recognized that aseptic blood-clots may become organized if not absorbed, and give rise to firm and dense adhesions. The absorption of any pus-forming agents that may possibly be intro-

duced during the operation, or even of those already present in limited numbers, and their destruction by the phagocytes, the presence of much blood in the peritoneal cavity to some extent prevents; these pathogenic bacteria thus being allowed to remain, rapidly multiply in the fertilized hotbed, paralyze this function of the white cells by their overwhelming numbers, attack the peritoneum, and in the majority of instances produce a rapidly fatal peritonitis. If this truth is accepted, no conscientious surgeon should fail to irrigate and drain after operations for the removal of pus tubes, dermoids, etc., or where there was much effused blood during or following an intra-peritoneal operation.

A peritoneum cannot absorb liquids as long as it is, so to speak, "waterlogged" or edematous. Any method or treatment, whether by drainage or by hydragogues, has the same object in view, that is, the removal of the effused liquid or its elimination by hastening its absorption. In "hulling" out adherent pus tubes, or dermoids, and in breaking up adhesions, many surfaces are of necessity left denuded of peritoneum. These surfaces have very poor absorptive powers, yet they pour out much fluid which, if not removed early, is liable to become putrid or septic. It is a well-recognized fact, that a traumatism produced by aseptic agents leading to plastic inflammation is localized to the seat of the injury, and does not spread much beyond this location as long as the surroundings are kept aseptic. Also, that the germ-producing powers of a once-begun septic peritonitis are unlimited, while the location of the bacterial hotbed within the cavity affected accounts for its widespread nature. With this truth before us, we should in every case do all operations, if not antiseptically, aseptically; and to insure the maintenance of this clean condition, endeavor to keep the cavity as clean as possible after the operation by not only draining the non-decomposed secretions, and thus reducing the severity of the aseptic fever to the lowest ebb, but at the same time reducing to a minimum the number of pathogenic germs accidentally or unavoidably introduced during the performance of the operation, and thereby thwart an attack of acute peritonitis. In cases operated in which there exists at the time of the operation a free dropsical fluid, a drainage-tube must be introduced, as the peritoneum cannot absorb anything when in this condition, and by keeping it dry a few days the effusion in many cases ceases to reaccumulate, unless the presence of the fluid be due to malignant disease of the peritoneum or other abdominal or pelvic viscera. In old and debilitated patients the absorptive powers of the peritoneum are lessened, and in these cases we find an indication for drainage. Operations involving structures in a state of inflammation are always followed by a profuse flow of serum, which is

more liable to become purulent or septic than if performed in healthy structures. There is less pain in the cases that are drained, as the pain from pressure on the nerves caused by the effused liquid is removed with the liquid. Fluid is liable to undergo decomposition from contamination through the intestinal walls. The accumulation of fluid in the pelvis must be prevented, if possible, after all operations.

We have in tubercular peritonitis another indication for drainage. In those cases where an exploratory incision has been made in tubercular peritonitis with an effusion, draining of the peritoneal cavity and keeping it dry, has cured many of them where the mesenteric glands have not been involved. Last week I operated on a patient who had received a pistol-wound of the liver. I saw the patient forty-two hours after the injury. I removed a piece of his blue working shirt, about an inch square, from the opening into the liver. This foreign body was certainly of a septic character. The temperature was 103° F.; after irrigation and a few hours' use of the tube, it dropped to 99° F., and remained there.

Dr. Hoffman (second time).—There are times when it is necessary for us to give a reason for the faith that is in us. Dr. Manton's observation has brought additional arguments for us to use in answer to the teachings of Sir Spencer Wells and others who do not believe in drainage. The point is this: Sir Spencer Wells is an abdominal surgeon, not a pelvic surgeon. He does not know any more about pelvic surgery than the youngest man in this room. His work in this field has been a failure from start to finish. I may take out a large ovarian cyst, not tampered with or punctured, just as easily as making a hole through this piece of paper which I hold in my hand, bringing out the pedicle and tying the end of it. Nobody would drain in such work. That is the kind of work in which drainage is not needed. When he proposes to discuss pelvic work alongside of abdominal work with complications or pus, as the case may be, he is treating things which are just as unlike as a silk handkerchief and the tiling under my feet. It is not the same class of surgery. The simple truth is never unfair. Somebody said at the table to-day, We can be polite, but when it comes down to being polite, and having somebody to lose their life by politeness, it is time to be positive. It is not an easy matter for us to point out one abdominal surgeon in the Old Country, with the exception of Lawson Tait, who has made a success of pelvic surgery. Mr. Lawson Tait, of England, is the only man who has done abdominal and pelvic surgery, the only man who has tried it, unless possibly it be Dr. Bantock, who uses the drainage-tube. You can go to the Atlees, you can

go back to Philadelphia, and take surgeon after surgeon, and what have they done in pelvic surgery? The men who have made success in pelvic surgery are the men who have grown up since, and that is the reason why one set believes in drainage, and the other set puts it aside as not necessary.

The use of the drainage-tube has been referred to in the matter of hemorrhage. You take any set of cases in which there has been danger, and take the consensus of opinion of trained nurses, and they will tell you that they feel most comfortable when a drainage-tube is used. They know that if there is anything wrong they are going to see it. About two weeks ago I had the case of a woman in whom the lesions were marked. I tried with the utmost care for twelve hours afterward to get a note from the nurse, and she said she did not see anything. I found the tube was filling up as fast as she could empty it, and a clean one was inserted every ten minutes. Every time she put in that syringe, out came blood. We did not waste any time, and drainage in this case saved the woman's life. She would have bled to death had it not been for it. She was perfectly quiet, losing blood rapidly, and when I saw her the pelvis was so full that it ran over the abdomen on to the bedclothes. There was no fault to find; it was simply due to a leakage—constitutional so far as I could tell. Here we saw demonstrated the advantage of drainage in doubtful cases.

Dr. J. Henry Carstens, of Detroit.—I am an advocate of the drainage-tube, and have advocated the method brought out by Dr. Hoffman, that in all cases of doubt we had better drain; so, for the last few years, I have made that my practice. I would like to go further and relate a sad experience I have had this year. Consider all cases doubtful. If you have a nice, clean case, such as I had some time ago, where the operation can be performed in a very few minutes, where there was no pus in the abdomen, it is not a doubtful one. When you sew it up nicely with a clean, buried animal suture you have no trouble afterward. If you do as I did in a case of that kind, you would not expect any trouble. A few hours afterward, when I saw the patient, I found her pulse weak and she evidently had internal hemorrhage which came on suddenly within an hour before I arrived there. I opened her up and found her abdomen filled with blood, and the woman died. When I see cases of this class I think we ought to have no doubtful cases.

I have had two other cases this year that, I am perfectly convinced, would have recovered if I had used a drainage-tube. One was a case where I made ventral fixation, and the woman got along splendidly for

a week. When I opened her, I found that the stump which I had sewed in the abdominal cavity had suppurated. The woman died. Last week I had another such case. Apparently it was a nice, clean case; no pus, no points requiring any washing out. I simply sewed up the abdomen; the woman got along very nicely for ten days, when I talked about sending her home. The next day there was a slight elevation of temperature, and the following morning I was notified that the temperature had within two hours jumped to 106°. The woman had septic peritonitis. She was opened up, and the cavity washed out, but she died. If I had used drainage I am sure the woman would have recovered. These cases prompt me to consider whether it is not really best for us to use a drainage-tube in every case. It is a question whether in all cases it is not best to drain, for by so doing we simply remove the fruitful soil for the development of germs.

Dr. M. Rosenwasser, of Cleveland.—It is hardly necessary for me to go into the details of drainage any further, as I think the ground has been thoroughly covered. I have made a note of a few remarks which might possibly mislead readers. First, in regard to the discussion on the use of gauze in pus cases. Dr. Hoffman has said that the use of gauze (for drainage) in pus cases is bad. I think I know just what he means, but if he had said that we *drain* with glass tubes and *pack* with gauze there would be no misunderstanding. I think in pus cases, such as abscesses of the liver or abscesses in the pelvis, in which we cannot in some way protect the intestines from contact infection, we pack the abscess not with the idea of draining, but with the idea of shutting off all possible infection between the intestine and the abcess cavity. The gauze in this case is not used as a drain. The main object in gauze-packing is not drainage, but either the control of hemorrhage by pressure or the separation of an abscess cavity from uninfected parts. If this gauze be left in the cavity three or four days—I leave it five days—you will find no trouble in removing it. In that time a fibrinous exudate has been formed around the gauze, and when the latter is withdrawn it is withdrawn from a cavity entirely shut off from the abdominal cavity. If we distinguish between "packing by gauze" and "drainage by gauze," we will avoid an endless amount of confusion in comparing the fitness of gauze or tube for drainage purposes.

Dr. King said he was afraid of glass drainage-tubes. In the first two cases I operated on, the glass drainage-tube broke. In the first case, when I looked for the missing piece of glass on the outside, I

could not find it. I flushed the abdominal cavity, still the glass would not materialize; but after the parietal walls had been closed I found it on the operating-table. The patient recovered. In the second case the glass tube broke off flush with the abdominal wall within the first twenty-four hours after operation. I carefully introduced a dressing-forceps, removed the tube, and found the entire length of tube cracked in every direction. I was lucky in both these cases, but they have made me feel that some other material than glass would be preferable.

A hard-rubber tube would be a good thing, possibly something else would be better; some material as firm and clean as glass, but less brittle, will be the drainage tube of the future. One of the Fellows allows a tube to remain until nothing comes out of it. That is not a good rule to observe. I do not feel safe to allow a glass tube to remain longer than forty-eight hours. I then either discontinue drainage or replace the glass by a rubber tube. Another Fellow spoke of having had four cases drained by glass tubes, followed by ventral hernia. He did not state whether the hernia occurred at the point where the drainage took place. If the drainage-tube is to be blamed for subsequent hernia, it must be in those cases only in which the hernia takes place in the track of the drainage-tube. If the hernia take place at some other point of the cicatrix the drainage-tube cannot be blamed for it.

Dr. H. H. Mudd, of St. Louis (by invitation).—I have listened to the remarks of a few of the preceding speakers. Drainage in pelvic cases where extensive adhesions were present, and in pus cases, has been the rule, but I am often in doubt about the character of the packing and the drainage. In pus cases I feel more secure with the use of drainage-tube and gauze combined.

I was a little surprised at the somewhat sweeping statement made about Sir Spencer Wells's experience. It occurs to me that a man of his wide experience could not have escaped very extensive adhesions and contaminations of the peritoneum from pus, offensive fluids, and other sources; and drainage in such cases would be as essential as it is in modern pelvic surgery. I can hardly believe that he has had a wide experience without extensive adhesions which would leave surfaces quite as prone to secrete freely as those we have in the late work in the pelvic cavity; I do not believe he has escaped such cases as would give rise to pus-contamination, yet his success has been remarkable. The success of some of the older surgeons without drainage has been excellent, and it justifies us in the selection of our cases for drainage. I have closed abdominal cavities where the adhesions were extensive and strong, where it took considerable violence to rupture them, without

drainage, and with satisfactory results. It is a question, I think, that cannot be determined as yet by any fixed rule. It is one in which the individual judgment of the surgeon must be called into requisition, and where the character of the work of individual operators must exercise marked influence on results, and it is something that will have to be left for the present as undecided.

The President.—I do not know that anything can be added by me to the subject of drainage which has been so candidly and freely discussed by the Fellows to-day, except the additional remark that, first and foremost, I look upon drainage as shortening our operations very materially and decidedly. I employ the drainage-tube in that direction. I also employ it as a sentinel, as has been spoken of by Dr. McMurtry, and have reason to rejoice in some cases in being called in time by my assistants, so that I was able to place my patients in a safe condition from having the sentinel to tell when hemorrhage was going on.

Now as to the manner of introducing the drainage-tube: Dr. Hoffman has covered the ground pretty well in his diagram on the blackboard, but I take it that most of us, when we have completed a section, have pretty clearly in mind the deepest portion of the pelvis, and endeavor to have the tube reach that point. As regards the point brought out by Dr. King and touched upon by Dr. Rosenwasser, with regard to the breaking of glass tubes, I will say that Dr. Price has called attention to it, and has made a tube which is stronger than the tubes usually made and sold by the instrument-makers. The glass is made with a certain proportion of lead introduced into the material, and it proves a strong drainage-tube. It may be dropped upon the carpet, wooden or stone floor, and still will not break. Properly disinfected, it can be used again. Having measured the distance between the deepest point of the pelvis and the upper portion of the outer wall of the abdomen, you make your incision as low down and near the bladder as it is safe to go. I introduce the tube carefully with my fingers behind the uterus, until I feel I am down in the deepest portion of the pelvis, and if I find it is a little too short I sometimes use two or three before I get the length of drainage-tube that I wish to remain. I place it at the bottom of the pelvis, having it open at the end, and bring it up above the surface of the incision; then I use a rubber dam much in the manner spoken of by Dr. Hoffman, placing in the rubber dam a loose piece of cotton. I feel, by bringing over a strip of a many-tailed bandage, I have control of the drainage-tube. There is danger that it will come out too soon, and you must bring a little gradual pressure upon

the top of the tube in some way. It is then in position with the rubber dam nicely around the crown at this point (illustrating). This may seem a little strong to some of you: I use iodoform gauze not to pack the wound outside, not to use it in the sense spoken of, but I simply pass gauze the length of the drainage-tube, and I know how far that gauze should be carried. I pack it carefully so that it touches the bottom of the cavity at this point (illustrating), and fill the tube loosely and carefully with iodoform gauze. I do not make use of iodoform gauze as a siphon, as represented by Dr. Hoffman. I have the gauze changed every fifteen minutes if hemorrhage is going on. I know the color of it just as well as if I remained in the hospital for an hour afterward. I watch the appearance of the gauze, and a well-trained nurse knows when everything is going right. The drainage-tube tells us the amount of hemorrhage that has taken place. I have seen the syringes used by many operators. Dr. Price uses the syringe and also Mr. Tait, but there is a sort of suction which bubbles of air give when sucked into the empty tube that is unpleasant. It gives a disagreeable impression when it is used in that manner, and I feel at times that it is much better to pack the tube with gauze altogether. I have not met with that complication where the tube is blocked with lymph or pus cells that may form clots. I have no reason to doubt that it occurs, but the tube must be changed often. As to how long it should be used in cases where the peritoneal cavity is irrigated, I do not believe it is necessary to leave it long enough to dry the cavity. Where there is tubercular peritonitis it is well to leave it in several days, for in that way such cases are cured. We should make a half-circle turn of the tube two or three times a day. In cases of tubercular peritonitis, if the tube is not turned it may become somewhat fastened by the tubercular material working itself into the holes of the tube. As to the length of time to leave the tube in, each case is a study unto itself.

When removing it I follow the line of the tube with a clean, short rubber drainage-tube. I have no reason to regret the use of the rubber drainage-tube in that way and I let it be forced out. I have had no unpleasant results in the way of ventral hernia following the use of the drainage-tube. In case of hemorrhage where we have met a number of adhesions, the drainage-tube is the best ligature I know of to keep the surface dry. It will help to close up the vessels and prevent the oozing of blood. As soon as the gauze shows a disposition to become dry it is well to remove the tube.

In looking back to the work of Dr. Peaslee, I remember seeing him operate a number of times. Dr. Peaslee considered it proper to drain through the cul-de-sac out through the vagina. He established that

as a method of drainage, and often it was an ideal way of drainage with him. He did his best to systematize and wash out with hot water and to make free use of it, but as a great many men have undertaken to drain in that way, I would really like to know the number of accidents that have occurred in that form of drainage. I have known one or two cases where injury to the bladder or ureter occurred.

As to Sir Spencer Wells and the manner in which he conducts his operations, when we consider the amount of time he used to spend in sponging, and with a long forceps reaching down to the bottom of the pelvis to make everything dry, it gave him, I believe, a greater mortality than he would have had if he had done away with sponging. I think, therefore, it is well to use the drainage-tube to shorten operations.

Dr. McMurtry (closing the discussion).—I think the discussion has shown very clearly a very extraordinary consensus of opinion on the part of the Fellows of this Association in regard to the use of drainage, and I take it that that of itself is a guarantee that they understand *how* to use the drainage-tube; because it is my firm belief, as I stated in my opening remarks, that the opposition to the drainage-tube is based upon a lack of familiarity and knowledge of the technique of its use. I will be brief, Mr. Chairman, in what I have to say; but there are one or two points in connection with the subject that I desire to emphasize or call special attention to. I wish to say that here are the three great dangers following abdominal section, namely, prolonged anesthesia, hemorrhage, and sepsis. In regard to the danger from so-called shock, I desire to say that we are often misled about it. I believe shock is too often only another name for hemorrhage.

The President has alluded to the operations of Dr. Peaslee. Dr. Peaslee's fatal results were nearly all due to prolonged anesthesia. His operations lasted from half an hour to two hours and a half, and he taught that it was important to spend time liberally at the operating-table, consequently his patients were put to bed cold from prolonged anesthesia. He was long and slow in operating, and the prolonged anesthesia killed his patients by shock. That is one of the advantages of the drainage-tube, and, as the President has just stated, it shortens operations. You irrigate and put in the drainage-tube, and the nurse can be cleaning out the peritoneum while you are putting stitches in the parietal peritoneum. Peaslee, Sir Spencer Wells, and others of the old school, did all that with the patient under profound anesthesia, and had the greatest part of their mortality from shock and prolonged anesthesia.

As to hemorrhage, the second principal danger, I am conversant with the practice of my friends and of the large number of cases that have died after abdominal section with this kind of history: Put to bed in good condition; pulse in good strength; did not seem shocked; patient got along very well for a short time, and then suffered secondary shock. I do not believe there is any such thing as secondary shock; therefore the drainage-tube shortens operations. In the second place, it is a guarantee against fatal hemorrhage, and provides us with a signal which warns to interfere at once.

Finally, as to sepsis, which is the third great danger. The drainage-tube is a great factor in the prevention of sepsis. It is the principal factor in preventing sepsis during and after operation, inasmuch as it carries off the débris or dead material that furnishes a culture-bed for septic infection. You can supplement that drainage very materially by making the bowels active before and after the operation. Active catharsis is a supplemental method of drainage and is of value. So I say, taking the three great dangers of abdominal section—prolonged anesthesia, hemorrhage, and sepsis—the drainage-tube is the essential and important factor in protecting the patient from all three of these great dangers, and consequently to my mind in the entire technique of pelvic surgery there is no one single thing that is so vitally important to the patient as the drainage-tube. In the second place, there is no better proof of a pudding than the eating thereof. Look at the results of Tait, Price, Bantock, and others of the modern school of pelvic surgeons, whose records show a death-rate that is reduced to the minimum; you will find they are great advocates of drainage; they are able practitioners, and the more they operate the more they use the drainage-tube. Take the other side of the question. Take the European surgeon who does operations for pus tubes, who does not irrigate, and his mortality speaks for itself. He is a skilful operator, and you can find no fault with him as an operator *per se*. His technique is devoid of the drainage-tube and of irrigation. If you look at either side from any direction, practical or theoretical, you can find an argument for drainage from every standpoint.

In regard to the older abdominal surgeons, I think no one wants to detract from the merit of those heroic souls who led the van in this great work. We have to concede that they did not deal with extra-uterine pregnancy, with pyosalpinx, and with conditions that are now the causes of the great bulk of the operations met with by pelvic surgeons. Take the Porro operation where you have a healthy uterus, a smooth peritoneal surface, and the question of septic infection is not

involved; hence we do not need drainage. Take a smooth, healthy ovarian tumor which has never been punctured or treated by electricity, you can remove that and have a perfectly clean field. You do not need a drainage-tube; but when you come to the new operations that have made pelvic surgery a great field you do need it.

In conclusion, I wish to state how I use the drainage-tube. Everyone has a peculiarity of use singular to themselves. I use a drainage-tube which is small—it is one that was devised and directions given for its manufacture by Dr. Price. I have never known one to break. I think with ordinary care and with a good nurse that it will hardly ever break. It is open at the end and perforated with small perforations from one inch and a half upward. It has a small collar, and the tubes are made in three different sizes. (See Fig. 1.) As the President has aptly stated, with your fingers down in the pelvis you can form an idea of the depth you are operating in, and it will be a guide to you as to the size of the tube. It is not an important matter to aim at the size of the tube, neither from a practical standpoint does it make any great difference if the tube rests on the lower surface of the peritoneum or an inch and a half above. With your suction apparatus you remove the fluid which accumulates there; if the tube does not reach the bottom, the syringe goes through, and it will not hurt. Deftness in its use comes from practice, and there is no appreciable danger of injuring the viscera either from the tube or syringe that is there. If the tube only goes through you can remove all the material as fast as it accumulates; if it should stand there at times, by frequent removal it cannot possibly undergo putrefactive changes. I put in three sizes. I put in a drainage-tube before I complete the operation. It is the best thing to carry off the water that occurs during irrigation. I put it in at the time I put in the stitches, and have a nurse to remove its contents from time to time by the suction apparatus. After the tube is introduced, I leave one stitch that is not tied at the site of the tube put through the abdominal wall, low down, just near the collar of the tube here (illustrating); you take a piece of rubber tube, make a puncture in the middle of it, and you have it to fit tightly. I use a piece of gauze. I put it inside the tube, put six inches of rubber dam in this way (illustrating), and a four-tailed bandage is put around the patient, one above here and another here (pointing to blackboard). When the discharge from the tube has practically ceased running it should be removed. The peritoneum is always secreting some.

One other thing, and I have done. Every intelligent nurse that

has seen and cared for a considerable number of abdominal sections knows that, where there is not an appreciable degree of sepsis—that is, where there is nothing to suggest the taking of the temperature of the patient—where the pulse does not reach 100—their convalescence is brighter, and the patient's progress and appearance are more normal than in the simple cases where you do not use a drainage-tube.

TECHNIQUE OF VAGINAL HYSTERECTOMY.

By J. HENRY CARSTENS, M.D.,
DETROIT.

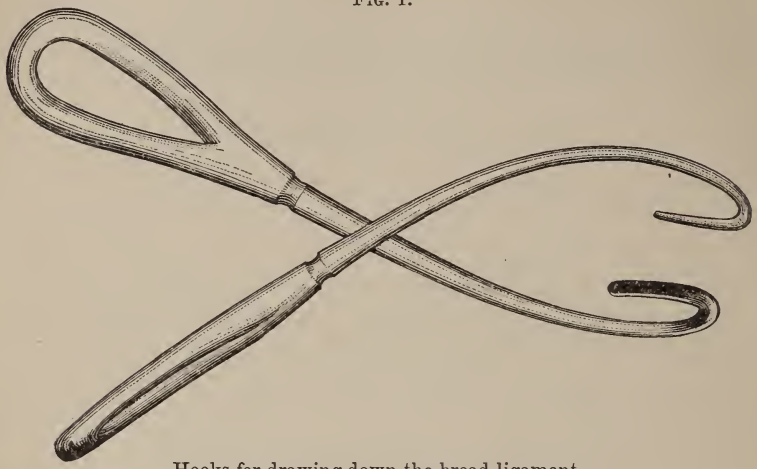
Before a society of workers whose constant study is devoted to finding the causes of and best means of treating the diseases peculiar to women, it is not necessary to copy from text-books and journals the peculiar mode of operation of each surgeon. Suffice it to say that some use the ligature exclusively, some clamps, and others use both ligature and clamps. Some insist on first separating the bladder and uterus up to the peritoneum, some also enter the peritoneum in front, while others first open into the cul-de-sac. In fact, almost every operator has his own peculiar method.

Still, I am certain that no one operates exactly as he described his method one or two or five years ago. We all pick up little points here and there, drop others, and thus within ourselves evolve a method of operation which is adapted to our own mental and muscular condition, all aiming to obtain rapidity of operation with safety to and ultimate cure of the patient.

I am a follower of the clamp method, and operate as follows: Patient in the lithotomy position; with a wide retractor expose the uterus; this is grasped with a three-pronged volsella. With a knife I cut through the mucous membrane and submucous tissue encircling the uterus. If only the crescentic cut is made, one in front and one behind, the mucous strip on each side is compressed by the forceps and will cause a great deal of pain; but if it be cut through and pushed back, so that the forceps grasp the ligament only, very little pain is experienced. Then, with a finger and the handle of a knife, one can separate the uterus from the bladder. A cut is then made in the cul-de-sac, and a sponge, attached to a string, is introduced above the uterus to keep back the intestines. Then a finger is introduced and hooked around the broad ligament,

thrusting it anteriorly through the remaining peritoneum. Besides the finger I also use these hooks (Fig. 1), which enable me to use

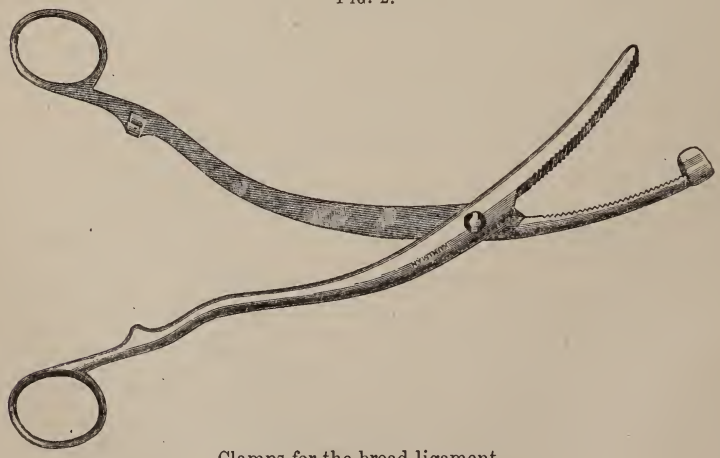
Fig. 1.



Hooks for drawing down the broad ligament.

both hands when putting on the clamps. With my finger or a hook as a guide I can easily put on the clamp on one side, and then the same on the other side, putting the clamp close up to the uterus,

Fig. 2.



Clamps for the broad ligament.

and including, if possible, the ovaries; then the broad ligament on each side is cut between the uterus and the clamp. Any slight

attachment to the bladder can be quickly separated. The diseased organ is now removed. By pulling down the sponge we pull down the peritoneum which might have been inverted. Pieces of gauze are placed in the vagina, surrounding the clamps, and on which they rest; this acts as a drainage-tube and at the same time prevents injury to the mucosa by the clamps (Fig. 2).

The clamps I remove in from twenty-four to forty-eight hours, and then use douches once or twice a day. If the clamps have not been compressed too tightly there is no sloughing of the stump, and in one week all discharge stops.

I said above, if the ovaries can be reached I remove them also; this, of course, does not refer to women past the menopause, where senile atrophy has taken place. In such cases I waste no time to remove the ovaries, as little danger exists of future complication. But in young women I always remove the ovaries when possible, as much trouble is often caused by future ovulation in the abdominal cavity, even without a uterus. By pulling the fundus through the cul-de-sac, thus twisting the broad ligaments on themselves, one can bring the ovaries down so that they can be readily grasped by the clamps.

By using the knife only to make the cut around the cervix, cutting through the mucous membrane, submucous tissue, and entering the cul-de-sac, and using only the handle and my fingers to *tear* and separate the balance of the tissues, I have been fortunate not to enter the bladder or injure the ureters, nor does much hemorrhage take place. If, however, any arterial branch should cause trouble, I take it up with a catch forceps—in very rare cases two or three catch forceps are required; these I leave in the vagina, removing them when the clamps are detached.

In my last case I intended to catheterize the ureters and leave the catheters in place during the operation, so that the ureters could be felt and avoided; but I could not get the proper catheters at the time.

These clamps I have had made similar to many others, but still a little different. They are light, weigh less than three ounces, and can be easily applied.

This operation is easy and can be performed usually in fifteen minutes; result, no shock.

I have seen some of the best operators in this country and Europe

use the ligature of silk. The operations would last one and one-half to two hours. The ligature, of course, must slough off; this will take from three to four weeks.

With the clamps the patient need be kept in bed only ten days, and in two weeks leaves the hospital. Of course, the ultimate result is the same.

The advantages of the clamp over the ligatures are: The operation can be quickly done—in fifteen or twenty minutes. The shorter the time, the less the shock. Then, as soon as the forceps are removed the patient does not require any after-treatment. There is no danger of septic infection by ligatures, as absolutely no ligatures are needed. I have often remarked that if we could use the buried animal sutures exclusively in this operation I would give up the clamps. If the kangaroo tendon will fill the bill I will use it; but, so far, I have not had enough experience with it. Of course, every operation should be done thoroughly, but still quickly, and the shorter the time a patient is kept under an anesthetic the better.

DISCUSSION.

Dr. A. H. Cordier, of Kansas City.—Mr. President: As I am a new member of this Association, I hesitate to open the discussion on the technique of vaginal hysterectomy; nevertheless, as there are some points that I think ought to be added to the subject, I venture to say a few words. In the first place, I think that Dr. Carstens has omitted to mention some of the preliminaries in the operation, which it would have been well to have elaborated, more particularly as to the matter of cleanliness. In the second place, in disease of the uterus requiring the removal of the organ, in the majority of instances we find also tubal disease, and the removal of the tubes becomes advisable; not necessarily, however, from the same condition that demands the operation of hysterectomy, but through an extension of the existing endometritis. Again, I do not believe the forceps used by Dr. Carstens is long enough. I use the same forceps that is used by Dr. Price; it is more powerful than that exhibited by Dr. Carstens, and is especially useful in doing a vaginal hysterectomy for sarcoma where the body of the uterus is involved and enlarged. In such cases I use an extra forceps. After opening the anterior and posterior cul-de-sac,

I do not twist the broad ligament; I introduce the posterior blade guided by the finger; by pulling down the broad ligament external to the Fallopian tube you can hold this in position while you hold the second blade, without letting this blade (illustrating) slip, and thus hug the uterus closely, slipping a smaller forceps up so as to make secure the uterine artery—that is, slip it up far enough on the broad ligament (taking care not to pinch the ureter) to secure the uterine artery. If this precaution is not observed, after applying a large instrument in the manipulation necessary to remove the other side, the uterine artery is liable to slip, and in case that should take place you have it secured by this small instrument. In the cases in which I have operated I have loosened the forceps at the end of thirty hours, but I did not remove them. By loosening the forceps a softening process takes place, and in case hemorrhage should take place the instruments are in position to stop it, leaving them on an hour or so after unlocking; they are then removed easily, after it is determined that they are no longer required.

In the matter of drainage I usually introduce, in addition to the gauze around the instrument to protect the vagina from pressure, a good-sized rubber tube, which makes me doubly sure of ample drainage. The point I wish to lay stress upon is the removal of the tubes and ovaries at the same time you do the operation. You will find it is generally the case that the tubes are diseased to such an extent that they should be removed also. The question of delay in cases of malignant disease is important, and too much stress cannot be placed upon that one point. Operate early. In a case in which I operated last week the family physician discovered an epithelioma at three o'clock in the afternoon; at half-past four arrangements were made for a vaginal hysterectomy. This was on Wednesday, and on Monday the operation was performed. No tinkering, no delay, and no complications by procrastination gives the woman the least risk from this radical and intelligent surgical procedure, as well as the greatest chance of a permanent cure.

Dr. Joseph Hoffman, of Philadelphia.—In all of the clamps that I have ever seen, Dr. Cordier's and Dr. Carstens' among the rest, there is a serious mechanical defect, and I will endeavor to point it out. The perfect clamp has not been built yet. Here is the broad ligament sweeping down alongside of the uterus which we wish to remove by hysterectomy. The thickest part of the broad ligament that we wish to compass by our clamp lies at the top, so; consequently we will let this represent a lateral section (illustrating). Now we

must get our clamp from the bottom up. The consequence is, that if you have the thickest part at the top, or if you close your forceps, you have it closing at the top on a mass comparable to this (pointing to blackboard), which comes down exactly in the form of a triangle. The main power, therefore, of the forceps is expended on the top of the mass, and the lower part is not clamped at all. But notwithstanding you have difficulty, you see very well that a strong forceps overcomes this. It is bound to give the maximum spring, while the lower part of the forceps gives the minimum. You have unequal tension all through the forceps. What you want in the forceps is a pressure on the blade which will graduate itself in the blade, the flange fitting into the blade which hinges itself to the bottom of the forceps so as to get an equable pressure through the ligament, in order to make pressure upon it that will not put the forceps on the tension, which is expending itself at the weak point of the blade and at the lock.

A gentleman of my acquaintance was doing a hysterectomy some time ago, and he had an instrument made like the one which has been exhibited. He slipped it on to the broad ligament, enveloping it perfectly. He had locked the clamp on tight, when off went the joint. It shows, so far as a clamp is concerned, that there is a mechanical difficulty, that the parallel blade of the clamp which is made to include the ligament, which is itself a defective instrument, does its work by a doubtful force and weakens the instrument for each successive operation. We all know these things by experience. This gentleman had been working *per vaginam* and there was nothing left for him to do; he abandoned the operation vaginally, made an abdominal incision, and went in from above, after having worked in the vagina from below. You know the rest: the gentleman lost his patient. The thing is just as easily controlled as the controlling of your watch in your pocket in turning back the hands. When the ligature drops off you know where you stand. You know where the ligament is when a half-dozen artery forceps are applied one after the other; you can crawl on the top of that ligament with a tenaculum just as quickly as I am telling you. The sooner somebody grasps this mechanical defect in making an instrument that will distribute its pressure as the tissue to be encompassed is distributed, and an instrument that will not slip, the better it will be for the profession.

Dr. Carstens (closing the discussion).—The objection I have myself to these instruments is that they are too big—hence, too heavy. My idea is that they should be made small and short, otherwise they will hang out of the vagina too much. If you have side pieces the

blades will not wobble and there is no danger of it slipping. Take the forceps I have here—where is the greatest pressure? The point of greatest pressure is up here (illustrating). The objections of Dr. Hoffman are theoretical. I do not think there is very much in the broad ligament. What I object to is a big, heavy instrument such as we generally use. The broad ligament does not require any such instrument. You can have a light instrument which will do the work entirely. I had hoped that the question of ligatures *versus* clamps would be brought up, for that seems pertinent to the subject, but as it has not, I will not prolong the discussion.

TETANUS FOLLOWING AN OPERATION FOR LACERATED PERINEUM.

By EDWIN WALKER, M.D.,
EVANSVILLE.

Tetanus is probably the most dreadful post-operative complication the surgeon has to encounter. When this fatal malady ensues on an operation not in itself dangerous, he is truly in an unhappy attitude. The researches of Nicolaier, Rosenbach, Kitasato, and others have established the infectiousness of tetanus beyond a doubt. Its occurrence, therefore, after any surgical operation is *prima facie* evidence that it was not done aseptically. But, alas! deadly germs sometimes find their way into surgical wounds in spite of our most scrupulous care.

The case I have to report is one of tetanus following an operation for lacerated perineum. It was performed by a surgeon of large experience, and who is a careful and thoroughly competent operator. It was done with more than usual care. The patient was prepared after the most approved method. All the instruments, towels, dressings, etc., were taken out of a sterilizer when used. The operating-table, and in fact everything used, was most suitable and scrupulously clean. I have seen no operation by any surgeon in which the details appeared to be more perfect, and I have seen many by prominent operators which lacked much of being as nearly aseptic as this one.

Mrs. M. K., aged fifty-four years; youngest child fifteen years old. She was the mother of several children, and this laceration probably dated back many years. There was a large rectocele. Emmet's operation was done — ligatures, silkworm-gut, iodoform-gauze dressing, continuous irrigation with boiled water during the operation. It was done June 25, 1892. She slept most of the day; vomited several times. The temperature rose during the evening to 100.4°, pulse 92,

respiration 26. The second day she rested well; she retained nourishment and vomited only once. The morning temperature 98.8°, evening 100.4°; pulse and respiration same as of previous record. Third day: Felt well; temperature 99.6°, morning and evening. Fourth day: Bowels moved with magnesia sulphate. In the evening she was not so well; temperature 103°, pulse 115. The wound seemed to be doing well; no discharge or tenderness. The trouble was supposed to be due to malaria. Fifth day: Three five-grain doses of quinine sulphate administered; morning temperature 99°, evening 100.4°. Sixth day: Felt better; twelve grains of quinine given; morning temperature 99.4°, evening temperature 100.5°; pulse 76. Seventh day: Highest temperature 99.4°; pulse 66. Early in the morning the patient complained of slight stiffness of the jaw and muscles of the neck, but otherwise felt quite well, and no special importance was attached to this symptom. Eighth day: Not so well; complained more of the stiffness of the muscles of neck and jaw; swallowed with great difficulty. These symptoms made the diagnosis only too plain. The patient was kept as quiet as possible, and morphine, hypodermatically, liberally given. At 6 P.M. she had her first convulsion, and from that time became rapidly worse. Death took place at 4.30 P.M. of July 3d, the ninth day after the operation.

I have been unable, after examination of the literature at hand, to find a case of tetanus following an operation for laceration of the perineum, except one reported by Werzünski.[1] This was, however, a recent laceration, sutured at once. The patient had headache on the fourth day, and trismus on the fifth. She improved, but relapse followed, and death took place on the sixteenth day. This case should be classed with puerperal tetanus, of which quite a number have been reported. I have found no cases reported after operations on the external genitals, although a number have followed abdominal sections.

The lesson to be learned by this sad case is apparent to you all. It shows us that we cannot be too watchful, and that we need constantly to be on the alert for errors in our technique. In spite of the care taken this was not an aseptic operation; the existence of the tetanus is *prima facie* evidence of this.

Such cases serve to impress on us that any wound, no matter how slight, is an avenue through which fatal infection may find

[1] Russian Journal Obst. and Gyn., No. 6, p. 90.

entrance into the body. I saw a woman die from tetanus, the infection having been introduced by a hypodermatic needle. She was a morphine *habituée* and used the injections herself. Her body was marked with many scars from abscesses her filthy syringe had made.

There was one thing done by the operator in the case reported which I wish to mention as the possible source of the poison. In order to facilitate the denudation and passing of the sutures, the fingers were several times passed into the rectum; they were rinsed carefully each time. I have often seen operators do this during perineal operations. We know, however, that it is almost impossible to render a rectum aseptic, and the finger thus introduced could only be sterilized by more care than is usually given it during the progress of an operation. Since the operation can be as well done without inserting the finger into the gut, it is unnecessary to take such risk of infecting our wound. This may have been the source of the infection in this case, since Lormani[1] has shown that the tetanus bacillus does not lose any of its activity after having passed through the alimentary canal of carnivorous or herbivorous animals.

DISCUSSION.

Dr. John C. Sexton, of Rushville.—Mr. President: I do not wish to discuss this subject at length, but merely rise to report one case that I know of wherein tetanus and death followed a forceps delivery in which there was laceration of the perineum. The laceration was not very great. The case occurred several years ago, before aseptic precautions were observed as now.

The President.—I would ask Dr. Walker as to the surroundings of his patient, particularly whether they were such as would lead to soil saturation and contamination in any way?

Dr. Walker.—The operation was done under the most favorable circumstances at a private hospital. In the operation every precaution known to modern surgery was observed. The patient had been in the hospital two days before the operation, and had been bathed and

[1] Riforma Med., Naples, No. 95, 1889.

douched. I do not think asepticism could be more thoroughly carried out than in this case. There is a likelihood that in passing the finger into the rectum the germ was obtained, and so introduced into the wound. The rooms on the second floor of the hospital, where the operation was done, were perfectly clean, and we could find no other plausible explanation of the question.

Dr. Joseph Hoffman, of Philadelphia.—The question about the cause of tetanus is very well explained. The tendency in these days is to look always for microbes everywhere, and it does seem sometimes as though you cannot attribute tetanus to the presence of a microbe. For instance, in a very long, extensive hospital service, I have only known one patient to die of tetanus, and this was after an amputation. The patient's arm was amputated under the same surroundings and by the same man, who at the time was doing all of the hospital surgery day after day in conducting clinics, and none of his patients, except this one, had any trouble whatever. None died, none had tetanus, none had suppuration, none had infection. This girl died unmistakably of tetanus, and apparently simply from catching cold. Her arm was dressed antiseptically, and there was no suppuration in it or sign of trouble; but by some means she got out of bed, wandered off in her sleep down to the cellar, lay there all night, caught cold, the next day was found and brought back to bed. In thirty-six hours thereafter tetanus developed. Whether the microbe in cold causes tetanus I do not know, but it is very certain that this patient had just the same history. You see at once the impossibility, so far as we can judge by limited resources, that she had any special microbe or any source except the cold that caused the tetanus. Of course, this is not scientific. It is a question whether in every case of tetanus we can look for a special microbe.

I do not know Dr. Walker's technique in reference to doing operations for the repair of the perineum. We do know that pus in the perineum after operations frequently causes death; we do know patients get sepsis. Whether there was any sepsis present or any sign of pus or suppuration in this woman is another question. The Doctor says no. Then, again, we have another question: Did the tear go through to the bowel? The question that came to my mind was the possibility of some rectal poisoning. I have seen patients die from the deep sinking of the needle into the perineal tissue, wounding something by not knowing exactly where the needle was going. I have seen operators of wide experience doing perineal work, drop their instruments on the floor after the most rigid antisepsis, and then put

them into the tissues just as though all the disinfection was a hoodoo and nothing could soil the instrument. The question comes up whether in some cases, the poison is not caused in this way. I do not mean to infer that Dr. Walker made any such blunder as that, but there is always a question whether wounding a vein of the perineum, or taking the stitch too deeply, going through the perineum into the bowel, might not cause poison or absorption of ptomaïnes that always exist in the bowel; hence, sepsis might occur in a way that possibly could not be known.

So far as the literature of the subject is concerned, I am sorry that I did not know that Dr. Walker's paper was going to be on perineal work. I will be glad to forward some literature to him and to give him some data on tetanus caused in perineal work by the large needle. I think I have it, and will look it up when I get home.

Dr. Walker (closing the discussion).—Of course, I have only had access to a limited number of medical journals, and I did not find any cases. We know now that when a man has a case of tetanus following an operation, that the patient has been infected in some way. I did not do the operation myself. We carefully looked over the ground, but failed to find how the infection found its way into the wound. In all the cases that have been investigated they have found the bacillus of tetanus, the same as when we have a case of typhoid fever we know that it is due to the germ of that disease. We know that when a surgeon has tetanus follow any operation something is wrong in the technique. He is not thorough enough.

SEVEN UNREPORTED CASES.

Ovariotomy after Childbirth—Chronic Inversion of the Uterus, with Amputation—Two Abdominal Sections for Tubercular Peritonitis—Two Operations for Irreducible Hernia—Porro Operation.

By WILLIAM H. MYERS, M.D.,
FORT WAYNE.

OVARIOTOMY AFTER CHILDBIRTH.

At a meeting of the American Medical Association, held in Detroit, June, 1892, I read a paper, in the Section of Obstetrics and Diseases of Women, entitled "Ovariotomy in the Presence of Pregnancy." I stated that pelvic cysts are a formidable complication of labor, and are almost sure to cause abortion, torsion of the pedicle, rupture, suppuration, and peritonitis. Dr. Barnes, of London, was quoted as saying that Nature could not tolerate a pregnant uterus and a growing ovarian tumor, and I might have added the statement of Bland Sutton, upon the same subject, that the danger to life under such circumstances is far greater than the risk of ovariotomy.

Case I.—On the 15th of August, 1892, I was called in consultation with Drs. Davenport and Horton, of Bluffton, to see Mrs. B. H., aged thirty-six years, mother of three children. Two months prior to this time she had given birth to a full-grown child weighing eight pounds. The labor was rapid, and terminated before the arrival of the family physician. He arrived forty minutes after the birth of the child, and deemed it inexpedient to make a special examination, the patient being already in bed; hence the tumor was undiscovered. Some weeks after this, on account of her unusual size, her husband, fearing that it might be caused by dropsical effusion, called Dr. Davenport, and he dis-

covered an ovarian tumor. At my first visit, after completing the proper arrangements, she was anesthetized with ether and the tumor removed. It was polycystic; no adhesions. Very little shock or hemorrhage followed. The pedicle, springing from the left side, was thin and narrow. It was transfixed by a double ligature in the form of a figure-of-eight, and thus secured. The weight of the tumor, solid and fluid, was twenty pounds. The peritoneal cavity was flushed thoroughly with warm water which contained no chemicals. A drainage-tube was inserted into the lower angle of the wound, and it was closed by deep and superficial silk ligatures. The usual aseptic dressing was applied. The after-treatment was strict horizontality, the avoidance of opium, and the giving (on the third day) of a saturated solution of magnesia. The highest temperature reached was 101°. The last report from the patient was complete recovery.

In this case I found none of the conditions present as described by Emmet when he says: "We have always to recognize the danger of additional adhesions forming, in some unusual manner or place, as a consequence of the displacement of the tumor by the enlarging uterus."

Sir Spencer Wells, in referring to cases of ovarian disease complicated with pregnancy, says: "I know one woman who, during the slow progress of an enlarging ovarian cyst, has gone through five pregnancies, has borne five living children, without unusual difficulty." He casually refers to two other cases, and then remarks: "I cannot remember one other case where pregnancy complicated with ovarian disease has gone to its natural termination in the birth of a living child, or where, in consequence of non-interference, great suffering has not arisen during or after labor." In the case above reported the tumor must have existed long before conception occurred.

CHRONIC INVERSION OF THE UTERUS, WITH AMPUTATION.

Case II.—Mrs. B., aged fifty-seven years. For five years she had hemorrhages, oft-recurring, sometimes profuse; these pointed to the presence of a fibroid tumor within the uterine cavity. There were also present, as related by her, pelvic sensations due to pressure and uterine contractions. During this long period she was occasionally under medical care. Ergot had been administered and astringent injections used to control the hemorrhage when it became so profuse as to endanger her life. For the last eighteen months of the above

period she had been victimized by an old adventuress from a neighboring village. The patient growing worse daily, she at last abandoned her, and on the 14th day of February, 1892, I was called to see her. I found the inversion complete, fundal; the cause determining it automatic. It occurred in connection with the presence of a fibroid tumor attached to the interior surface of the fundus. The determining causes were muscular contraction (the *vis a tergo*) and the old midwife (the *vis a fronte*). The tumor evidently sank into the cavity of the womb, partly by its own weight and partly by the assistance of the midwife. These two forces brought about the complete inversion; the invaginated organ had escaped from the vagina. There was protruding from the vulva a red, fleshy tumor, fully seven inches in length and nine inches in circumference at its largest diameter; the first three inches (measuring from its origin) consisted of the everted vagina. The fibroid tumor had been removed by the use of a ligature applied by the midwife, using for the purpose an ordinary tape one-half inch in width; this had been allowed to remain one month before it accomplished the separation. Mistaking the fundus of the uterus for another fibroid tumor, she attempted to tie it off, but failed, the ligature making only a deep crease. She persistently followed up this treatment for months, and finally concluded that poultices assiduously applied would bring the relief so earnestly sought for. The tumor at the time I saw the patient, presented an ulcerated surface; it was sensitive to touch, and bled even if gently handled. She was intolerant of any manipulation; this, in connection with the length of time that had elapsed since the inversion, and its completeness, deterred me from any attempts at reduction, confident as I was that it would result only in failure and increase and prolong her suffering. I therefore resolved that amputation of the uterus by ligature and the écraseur was the best method of treatment. On the 15th of February, 1892, while under the influence of ether, she was placed in the lithotomy position. I then passed a double ligature through the tumor at a point marking its junction with the vagina; it was passed in an antero-posterior direction. The advantages of passing these sutures before amputating are thus stated by Hart and Barbour: "They are ready *in situ* to control hemorrhage; they give us a purchase on the stump when the portion below is cut away." After tying I passed the chain of the écraseur outside of the ligature, and immediately began to tighten the chain with the idea of speedily removing the inverted organ. After cutting half-way through the mass the chain broke, and I was compelled to complete the operation with the knife. The separation was complete in less than thirty minutes. This was followed by a profuse hemorrhage. I caught the

bleeding-points with long catch-forceps, which I allowed to remain. A partial reduction of the vagina to its proper place within the pelvis was now accomplished. Iodoform gauze was packed within its cavity and about the forceps. This dressing was allowed to remain for three days. At the expiration of this time the forceps were removed without a return of hemorrhage. I continued the use of iodoform gauze two weeks longer. Her progress to health was uninterrupted. She has made a complete recovery.

I desire to state that the use of the catch-forceps, which I allowed to remain, not only arrested the hemorrhage, but also prevented the inversion of the stump, thus preventing the raw surface from lying in the peritoneal cavity; had this occurred it would have been a serious accident and would most likely have been a source of septic infection.

TUBERCULAR PERITONITIS.

Case III.—In September of 1891 I visited W. S., aged seven years, a patient of Dr. Metz, of Ossian, Indiana. I found him in bed, his knees drawn up, pulse 120, temperature 102°. He complained of tenderness over the umbilical region, extending above it and to the left. I detected here distinct fulness and dulness on percussion. He had frequent attacks of nausea and vomiting, and the most prominent symptoms were constipation, loss of appetite, and the usual attendant emaciation. The abdomen alone was large. On the 3d of September, in the presence of Drs. Ruhl, Metz, and H. S. Myers, the patient being aseptic, I made an exploratory incision four inches in length in the median line, opening the peritoneal cavity. The intestinal canal presented extensive adhesions, and the peritoneum was studded with myriads of tubercles. I broke up the former and removed the fluid, after which the abdomen was washed out freely with hot water and the wound closed and properly bandaged, with a drainage-tube inserted and allowed to remain fourteen days. When last seen, in August, 1892, he was in good health, being quite stout and fat.

Case IV.—Mr. J. R., aged twenty-two years, after an illness extending over months, was admitted into the St. Joseph's Hospital, and on January 14, 1892, assisted by Drs. Porter and B. V. Sweringen, I performed a laparatomy. I found the omentum hypertrophied and adherent, and some slight effusion present in the peritoneal cavity. There was evidence of tubercular peritonitis. The abdominal cavity was flushed with hot water, the wound closed, and a drainage-tube inserted. After this the evening temperature fell below 99°, the pulse

became normal, and the appetite greatly improved. The drainage-tube remained ten days, and he left the hospital in three months. He has entirely recovered and resumed his place as a machinist in one of our shops.

IRREDUCIBLE HERNIA.

Irreducible hernia is defined as a morbid condition of hernia in which the contents of the sac cannot be completely replaced within the abdomen. Irreducibility is referable to altered conditions of the sac, its contents, adhesions, and hypertrophy of the omentum.

Case V.—On the first day of January I was consulted by Sister ——, aged thirty-five years. She was afflicted with a femoral hernia on the right side, irreducible, and the size of a double fist. She was incapacitated from following her vocation—teaching. Having tried appliances of almost every description, she was now willing to discuss and consider the advisability of attempting a radical cure by a surgical procedure. I stated fairly the risks she would have to incur if operated upon, and she consented. On the 7th of January, after being anesthetized with ether, I made a free incision four inches in length on the inner side of the tumor. It extended well above the femoral ring, freely exposing the point where the omentum and bowel emerged, affording me a clear insight into the relative position of the tissues involved. I opened the sac and thus brought to view a large mass of the omentum. Breaking up the adhesions as high as possible, it was then drawn down, spread out, and held by an assistant. Then I passed a curved needle, armed with the finest Chinese silk thread previously boiled in a carbolized solution, under a number of vessels, and tied each separately. The ligatures were cut close. In addition a ligature was passed through the central portion and tied. After this I cut the omentum away as high as possible. The intestinal adhesion was at the upper part of the internal ring. It was broken up without endangering the integrity of the intestinal canal. The omentum, after its retrenchment, was placed within the abdominal cavity; the hernial sac was pulled down and held apart by a number of catch forceps; a purse-string suture of carbolized silk was employed, and the neck of the hernial sac occluded. The ring and canal were sutured and a small drainage-tube inserted in the lower angle of the wound. The usual dressing with iodoform gauze was applied, firmly secured in place by a light elastic bandage over the loins and upper portion of the thigh. The patient was now placed in bed. Eight days after the operation the bowels moved. The dressing was changed on the ninth

day, and was free from pus. The temperature during the above period never exceeded 100°. Convalescence was slow, owing to the pressure of a small abscess occurring after the removal of the dressing. She kept her bed eight weeks, but was entirely cured at the end of three months, wearing no appliances whatever.

Case VI.—Mrs. G., aged seventy-nine years, had long been afflicted with chronic cystitis, and had for months been confined to her bed. During her illness I discovered a femoral hernia. It was irreducible, situated upon the right side, the size of an orange. She fully convalesced; the cystitis disappeared. While exerting herself about her room she was suddenly seized with pain in the swelling. This continued for forty-eight hours before I was called to see her. At my visit I found it hard, tense, and tender; constipation became absolute; the vomiting became feculent in twenty-four hours from the time the above symptoms appeared. The symptoms were urgent, so that I did not persist with the taxis; delay was dangerous, for tympanites and evidences of peritonitis were now present. Asepsis was carried out in the minutest detail. I was assisted by Dr. B. V. Sweringen, who administered ether. A vertical incision was made in the inside of the tumor three inches in length, extending above the top of the swelling. Upon opening the sac the omentum presented itself. It was unraveled and the intestine sought for, upon finding which it was discovered to be a small knuckle, tense, much altered in color, being quite dark. The bulk of the swelling being the omentum, it was tied with silk ligatures and cut away very close to the silk. The adhesions were principally omental, within the interior of the sac. I now abridged the sac, tied it with silk, and reduced it within the peritoneal cavity.

I allude to this case for the reason that it possessed a few points of interest that I desire to emphasize:

1. The age of the patient.
2. The long duration of her previous illness.
3. The feculent vomiting, which continued for ten days after the operation, and which was best controlled by allowing the patient to drink large quantities of hot water.
4. The constipation was absolute for eighteen days. During this time rectal alimentation with stimulants was kept up. Upon the eighteenth day after the operation the bowels moved, and she progressed to a complete recovery. The feculent vomiting in this case continued after the bowels had been relieved by an operation, therefore it must have depended upon paralysis of the intestinal canal, produced by its constriction during the strangulation.

PORRO'S OPERATION.

Case VII.—On the 27th day of August, 1892, I was summoned by telephone to New Haven, Indiana, to meet in consultation Dr. Null, of that place. Upon visiting the patient I found her to be a dwarf, twenty-two years of age, thirty-six inches in height and markedly rhachitic. Ten months previous to this time she had married a dwarf, and was pregnant. We were assured by her statements and from our own calculations that she had reached her full time. When I saw her she had been in labor twenty-four hours. The membranes were intact; abdominal palpation revealed the head in the left iliac fossa; auscultation gave evidence of a vigorous living child. Upon making a vaginal examination I found contraction of the conjugate below, one inch and a half; the pelvis extremely distorted. A consultation was held with Drs. Null, Brudi, and Gilbert. Craniotomy was dismissed as unfeasible on account of the diameter of the pelvis and the life of the child. This decided us in favor of the Porro operation. The environments were not such as we find in maternity hospitals—three rooms on the ground floor. The patient's condition did not admit of delay, so we hastily made such preparations as were possible, using an improvised table hardly suitable for the operation. Aside from this, precisely similar arrangements as for ovariotomy were made. She was placed upon the table; etherized by Dr. Null; Dr. Gilbert had charge of the sponges, and Dr. Brudi assisted to control the hemorrhage by using the elastic ligature. An incision was made from the umbilicus to within two inches of the symphysis, exposing the uterus; the incision was five inches in length. Sponges were placed about the field of operation, and at the junction of the lower with the middle third I made a small incision, sufficient to admit the finger. I now inserted the tips of both index fingers and tore the uterus open transversely without rupturing the membranes. I now thrust my hand through them, and, with my right hand placed back of the child's neck, the head was quickly delivered, the body following, and the child was passed to the nurse, who held it while the cord was secured by two ligatures and severed between them. With my left hand I seized the uterus, while Dr. Brudi placed the elastic cord about the uterine cervix, thus entirely controlling the hemorrhage. The ovaries and tubes, as well as the uterus, were included, at about the level of the internal os, in the wire of Kœberlé's serre-nœud. After the wire was tightened, the uterus with the contained placenta was cut away, and the elastic cord removed. Not having with me the guard pins usually

used in this operation, I placed below the wire a clamp such as is used in supra-vaginal hysterectomy. After flushing the peritoneal cavity with warm water the wound was closed, the pedicle resting in the lower angle. To the stump I applied perchloride of iron and glycerin, and the adjacent parts were freely dusted with iodoform. Iodoform gauze was fitted closely to the stump, and the outside dressing completed with a neatly fitting bandage. The operation was performed Saturday, August 27th, at 3 P.M. Almost entire absence of shock. During much of the time the pulse remained at 96, with the temperature from 99° to 100°, the highest. The pedicle came away on the thirteenth day. Twenty-four days have now elapsed; the patient is up, feeling well; the child is healthy, having an ample supply of nourishment furnished by the mother.

It has always been a recognized rule in midwifery that no woman should be allowed to die without some attempt being made to save her and her offspring, or at least to save her at the expense of the child. Difference of opinion, due in some measure to religious belief, and likewise to the personal feeling of the husband, has entered into this. Napoleon, when appealed to by Dubois, said: "Treat the empress as you would a shopkeeper's wife in the Rue Saint-Martin; but if one life must be lost, by all means save the mother." Henry VIII., when thus questioned before the birth of his son Edward, exclaimed: "Save the child by all means, for other wives can be easily found."[1]

Of late years the happy results following the Cesarean section and Porro's operation have done much to efface the dreadful feeling that we must, in such cases, decide whether the life of the mother or that of the child is to have preference—seeing that it is now quite possible to save both.

The object of supplementing the Cesarean section by this proceeding is to prevent those events by which that operation so often proves fatal—hemorrhage, uterine phlebitis, and peritonitis from gaping of the uterine wound and escape of the secretions into the peritoneal cavity.

The risk of Cesarean section is very great. In Paris every case for years has been unsuccessful. Dr. Harris, of Philadelphia, has got together a number of cases, from which he represents the mor-

[1] British Medical Journal, 1891.

tality as being only 25 per cent.—a conclusion evidently affected by the fallacy of not stating unsuccessful cases.

Up to the date of which Dr. Harris wrote, Porro's operation had been performed seventy-eight times. Porro began in 1876. In 1877 seven cases were put on record; in 1878 fifteen; in 1879 seventeen; in 1880 twenty-seven; in 1881 thirteen, the latter number being probably as yet incomplete. Of these seventy-eight operations, thirty-four were performed in Italy, fourteen in Austria, eight in France, eight in Germany, four in Belgium, four in the United States, and one in each of the following countries: Switzerland, Poland, Holland, Turkey, and England.[1]

Note from Dr. Harris.

JANUARY 14, 1893.

DEAR DR. MYERS: I wrote to you that I could not furnish the desired statistics, and then devoted several hours to making researches, so that at least a partial record might be made. I begin with case No. 174, on January 4, 1885, and give the operation of Porro the advantages of ten years' experience:

	No. of cases.	Women died.	Children lost.
Operations of 1885,	30	10	5
" " 1886,	39	13	5
" " 1887,	26	11	5
" " 1888,	35	5	7
" " 1889,	33	12	7
" " 1890,	45	7	9

Operations of six years, 208.[2] Number of women lost, 58; percentage, 27¾. Number of children lost, 38; percentage, 18¼.

Operations of the last five years (1888–92) in the United States, 15. Women saved, 10. Children saved, 8.

Porro operations have been performed in Italy, Germany, Austria, Russia, England, Scotland, Switzerland, France, Mexico, Canada, United States, Australia, Madeira, Egypt, Sweden, Japan, Holland, Switzerland, Belgium, and India.

It is more fatal under the same hands and in the same hospitals than the improved Cesarean section, and both are more dangerous than symphysiotomy.

If you have photographs of your Porro dwarf, will you kindly send me one? Yours truly,

ROBERT P. HARRIS.

[1] Medical Times and Gazette, 1883.

[2] February 17th: The record now gives 222 cases, 61 women lost.

DISCUSSION.

Dr. Joseph Hoffman, of Philadelphia.—Mr. President, I shall confine myself chiefly to the question of tubercular peritonitis, and would like to ask Dr. Myers whether he found symptoms of tubercular peritonitis in his cases before he operated, and how old the patients were?

Dr. Myers.—The boy was six years old. There were constipation and emaciation. The other patient was eighteen or nineteen; was operated on at St. Joseph's Hospital; had symptoms of tubercular disease of the lungs, but had been treated by a physician for two months, who regarded the case as one of typhoid fever. I removed a large portion of the omentum, found it very much thickened, and all bad symptoms disappeared. I pronounced it tubercular, although no microscopical examination was made.

Dr. Hoffman.—Was there much fluid?

Dr. Myers.—Yes, in the second case.

The President.—Did you give an anesthetic?

Dr. Myers.—Yes, sir.

The President.—Did you ever operate under cocaine in such cases as these?

Dr. Myers.—No, sir.

Dr. Albert Hawes Cordier, of Kansas City.—I would like to ask Dr. Myers, in the case of tubercular peritonitis in which the tubercular nodules were studded over the peritoneum, whether he found any involvement of the mesenteric glands? Were they enlarged?

Dr. Myers.—Yes, they were very much enlarged.

Dr. Cordier.—I have a case in which the mesenteric glands are as large as the end of my thumb. It seems to have followed tubercular ulceration of the intestine in a girl fourteen years of age whose father is a physician. It is certainly not a promising case to operate on.

Dr. Hoffman.—Did you drain in both of the tubercular cases?

Dr. Myers.—Yes, sir.

Dr. Hoffman.—The question of tubercular peritonitis in men has very often been discussed. Its pathological presence in women, as found so far, is connected with the tubes and the ovaries. When Dr. Myers started to give his report I thought it was going to be a question with me what the after history of the patients was, so far as removal

of the trouble. If the mesenteric glands are enlarged it would seem almost like a forlorn case, but such must not be so considered. It is wonderful what drainage will do in these cases. I have now in mind two cases, both women, in which there was simply a large cyst removed in one which was apparently peritoneal. After the cyst was opened the intestines were glued together, the omentum was bound down by marked adhesions, thickened, and there was nothing whatever removed except the apparently cystic fluid. She suffered great pain, was unable to move except with the greatest effort, had extreme emaciation, hectic, and every symptom imaginable of progressive decay—collapse—anything you choose to call it. Opening the abdomen of this woman, simply allowing the cystic fluid to escape and putting in half a drachm of iodoform worked wonders for her. In three weeks she was on her feet, and three years after did excellent work as partial nurse and housekeeper without any pain worth mentioning. At the end of this time her pain returned. A second incision found the intestines a little more glued together with a small collection of fluid, and another sprinkling of iodoform over the region disclosed by the incision put her on her feet, enabled her to do good work for a year or two, after which she passed out of my sight. I think she is in fairly good health at this time, but that is only my belief. I received a letter from her a couple of years ago in which she said she was well, and if anything has happened since I do not know it.

The next case I wish to call attention to as tubercular peritonitis was one of ovarian tumor. This woman had all the signs of acute tuberculosis. The ovaries and tubes were studded with miliary tubercles, but the peritoneum was intact. Drainage was established and iodoform applied, but in spite of everything that could be done there was suppuration from the drainage-tract for probably three months. This was not one of my own cases, but I took care of the woman for the operator, who went abroad and left her with me. I saw the patient almost every day during one summer, and at the end of the time I had the pleasure of seeing the incision heal, the discharge stop, and the woman become rosy. I saw her about six weeks ago. There has not been a healthier looking woman in this house today than she was then. She was absolutely free from pain and all discomfort, and perfectly able to do her work without any bad symptoms whatever. This is a case of tubercular peritonitis cured by iodoform and drainage.

I have had two other cases; one is a nurse who is now nursing an extra-uterine pregnancy case. She had a temperature ranging from 102° to 103° every day; she lost weight, varying from 145 to 120 pounds. She had hectic, chills, sleeplessness, progressive loss of flesh, all pointing

to premature decay, with no history of hereditary tuberculosis. Pus in her pelvis was suspected; there was extreme tenderness on one side, and although trouble was suspected on one side only, the tubes and ovaries were both thickened, enlarged, and studded with miliary tubercles. The operation was successful. There was no rise in temperature, and has never been since the operation. She had become habituated to the use of morphine from her pain, it was so intense. She is now out of that habit, and is doing good, thorough work as a nurse.

A third case is one which occurred in Georgia. She is a doctor. Before she graduated she had been examined by numerous physicians of her school, and, being a young woman, they all put aside the idea of tubercular peritonitis. One physician said she had anteversion, another symptoms of hemorrhage, of peritonitis, and bleeding, and heaven knows what else. I placed her in Dr. Price's hands because I did not care to operate myself. The operation revealed no pus, no enlargement, and at first no trouble whatever. Dr. Price even turned to me and said: "Hoffman, there is nothing the matter with her." Further careful examination, however, showed bilateral peritonitis, the peritoneum being studded with miliary tubercles from the pavilion of the tubes down to the ovaries. She was so forlorn in her hope of recovery that she attempted to commit suicide with morphine, which we found under her pillow. The woman is now rosy, healthy, and doing good work down in Georgia.

The history of these cases is of great interest taken in connection with the cases of Dr. Myers. It shows that the condition in the abdomen may be local, may be transmitted; if it is operated before the disease becomes general it is remediable. It shows what drainage and iodoform sometimes will do, and yet in the last two cases no iodoform was used. Whether this is universal treatment I do not know. In one other case the result was the same; the woman is well. Two of these cases stand as monuments to exploratory surgery, except to supplement the use of iodoform and drainage. In a certain symptomatology where there are indefinite symptoms, where there is a rise of temperature, where there is naturally a suspicion of pus, we are always justified in suspecting miliary tuberculosis of some one of the organs, and when suspected we should try to get rid of it by removing the initial spot and draining, with the encouragement that the disease will not likely recur.

Dr. H. W. Longyear, of Detroit.—I had a case of tubercular peritonitis in a woman that is of interest in this connection, as the treatment was not by drainage. Thus far the operation seems success-

ful. I removed a large quantity of fluid from the abdomen, and found the intestines, ovaries, tubes, uterus, and omentum all studded with miliary tubercles. I first washed out the abdomen thoroughly with sterilized water, then with a 1 : 10,000 solution of corrosive sublimate, and after that with sterilized water again. The excess of water I drew off completely by using my flushing-tube as a siphon. This was easily accomplished, as the tubercular deposit had stiffened the omentum and intestines in such a manner as to form a cavity in the pelvis, from which the water entered the tube without obstruction.

Dr. Thomas J. Maxwell, of Keokuk.—I had a case of tubercular peritonitis which simulated a cystic tumor. I began an operation, expecting to remove an ovarian cyst. The greater peritoneal cavity was completely cut off and filled with fluid, so that it simulated precisely the symptoms, appearance, and physical conditions of an ovarian tumor. But when I made an incision through the peritoneum, fluid was discharged from the abdomen, and I discovered then that I had not to deal with an ovarian cyst. The cavity was washed out thoroughly and the incision closed by buried and superficial sutures. The woman made a very favorable recovery, and continued so for five or six months. I thought perhaps her recovery was complete, but an accident took place, and she died of exhaustion as a result of the return of this trouble. I was sorry afterward that I did not resort to drainage in this case, but it occurred a number of years ago, before the treatment by drainage and irrigation of cases of tubercular peritonitis had developed to the degree it has at the present time.

I have a Cesarean section to report which was not successful. I was called to see it some two years ago. The woman had been in labor for some forty-eight hours, and it was after night. There was considerable squalor surrounding her; no advantages for carrying out aseptic or antiseptic conditions. I made an incision through the abdomen, extracted the child, also the placenta through the uterus, closed the incision with superficial stitches of catgut, but my case died thirty-six hours thereafter, apparently from exhaustion. The child lived for a a month, then died of neglect.

Dr. J. H. Carstens, of Detroit.—I congratulate Dr. Myers on the result of his Porro operation. We cannot always have the surroundings good. I have reported a case in the *American Journal of Obstetrics and Diseases of Women* almost identical with Dr. Myers's, and these cases are strong arguments in favor of the so-called Porro operation. I think the danger is far less than in the classic Cesarean section. The only grave question that arises is, whether it is proper to prevent future conception by removing the uterus and ovaries.

In reference to tubercular peritonitis, I have had during the last year cases which will corroborate Dr. Hoffman's remarks. The first case was a lady thirty-five years old, who had a great deal of pelvic trouble. I thought she had a pus tube. I operated on her and found it was tubercular in character; operating in the usual manner and draining for forty-eight hours, she made a splendid recovery. A second case was a young girl nineteen years of age. I have the pus tubes and photographs of them. They are perfect specimens. There was not a spot on the uterus or peritoneum as large as the end of my finger that was not tubercular. I kept on washing out and draining longer than I usually do. In the course of a week or ten days there was suppuration at one end of the incision. Finally, there was a purulent discharge from the tube, and when that took place I began to inject iodine; continued it for about two months. The cavity gradually contracted, became smaller and smaller, when, finally, the opening closed and the girl went home eleven weeks after the operation. She has gained in health, eats well, walks around, and appears well. In this case I found the bacillus of tuberculosis in the discharges.

Ten weeks ago another woman came to me who had an attack of pelvic cellulitis (so called in the country—pain and swelling on one side), but who really had tubal disease. When I operated she was very much emaciated, weighing only about seventy pounds. Everybody expected her to die from the operation. There was no pus in the tube at all, but there seemed to be a tubercular deposit on one side. All I did was to wash her out with a bichloride solution. The next day she began to eat—there was no end to her eating—and she came to my office last Saturday, ten weeks since the operation, weighing one hundred and ten pounds, From my own experience I can indorse what Dr. Hoffman and Dr. Myers have said with regard to laparatomy in tubercular peritonitis.

Dr. W. J. Conklin, of Dayton.—These cases of tubercular peritonitis are certainly very interesting, but I confess some surprise at the uniformly successful results reported by the preceding speakers. I saw a case which I will report briefly, although I am not thoroughly enough acquainted with the details to make it very valuable. About a year ago an operation was done for a supposed ovarian tumor, which was hastened from the fact that the patient's temperature rose from 101° to 102° in the evenings, and continued so for some two weeks, in spite of treatment. On making a section it proved to be, not an ovarian tumor, but an encysted collection of fluid. A cyst had formed by the gluing together of the intestines. The peritoneum was everywhere studded with miliary tubercles—in fact you could not place your finger

anywhere on the peritoneum without covering several of the little tubercles. Immediately following the operation the temperature fell to normal; the patient made a pleasant convalescence, and in three or four months afterward was quite well. I have not heard of the case since.

Dr. John M. Duff, of Pittsburg.—With regard to operation for puerperal peritonitis, I am pleased to say that in two cases operated upon by me complete recovery followed; another, however, did not improve, and died in a few days.

I congratulate Dr. Myers upon the result of his Porro operation. If I understood him correctly, the deformity had been promptly recognized by the physician first called to the case, and he, seeing the impossibility of delivery except by section, at once sent for Dr. Myers. While I do not wish to detract from the recognized ability of the operator, I do think we have here an evidence of one of the secrets, if not the great secret, of success in Cesarean section. The Doctor did not meet with a case on his arrival which had been put through an ordeal in vain attempts to deliver her; her soft parts were not contused and torn with forceps, nor had she been subjected to septic infection by prolonged manipulations. As a rule, we do not find our cases in this condition. I have never, with perhaps two or three exceptions, seen a case to which I had been called with the expectation that Cesarean section would be necessary in which I did not find the patient much prostrated after continued efforts to deliver her with the forceps.

These operations depend, so far as results are concerned, upon asepsis, and yet while we glory in our triumphs of today through asepsis and antiseptics, we must not permit ourselves to place too much reliance upon this one factor. Asepsis is not all of surgery, neither is it all of obstetrics. Anatomical knowledge, an intimate acquaintance with technique, a deft hand, and a careful discriminating judgment, are all necessary adjuncts. Pelvimetry is not practised as much as it should be, and I am afraid at least some of our teachers do not press its importance sufficiently upon the minds of their students. If we would avoid useless and destructive interference in cases of contracted pelvis, careful measurements must be made.

The President.—Something like a year ago I made a report on the subject of tubercular peritonitis, which included six cases. Since then I have had three or four more cases. The point I wish to bring out in this connection, based on my own experience, is, that I am convinced of the efficacy of iodoform; then to drain thoroughly and keep it up for some time. One case in particular I would like to speak of

occurred in this manner: The patient had been under the treatment of several physicians for the period of a year, gradually losing flesh. About three months previous to the time I saw her the abdomen began to enlarge. One of the physicians pronounced the case an ovarian tumor, and another a fibroid. When I saw her in the middle of June it was plain to me that the case was one of tubercular peritonitis. When in health she was one hundred and ten pounds, and was able to attend to her household duties. She weighed, during her illness, about seventy pounds, and was very weak. I was afraid to give any form of anesthetic, so, after she had been put in a good condition of cleanliness, I injected a 4 per cent. solution of cocaine, made an incision, passed in two of my fingers and found the peritoneum studded with miliary tubercles in all directions. A fold of intestine came up and presented before I found the tube, which was no more covered with the tubercular deposit than was the peritoneum elsewhere. I wanted to make the operation as short as possible, hence drained off the fluid, put in a glass drainage-tube, and placed one suture below and three above the glass drain. This patient came to see me about two weeks ago, having gained twenty pounds. She has an enormous appetite; went down to the seashore in August and enjoyed her trip.

The Porro case reported by Dr. Myers illustrates the importance of getting at an operation before the patient is worn out, or before craniotomy and other things have been tried. I should venture the opinion that the patient in Dr. Maxwell's case was exhausted. Four physicians in my own city worked for forty-eight hours in the attempt to remove a fetus in the manner described. These cases reported are interesting, and will prove of value in the literature of the various subjects which they serve to illustrate so well.

Dr. Myers (closing the discussion).—The environments of the first six cases reported were magnificent compared with those I contended with in my Porro case. A discussion of this subject certainly involves the question of craniotomy. A child ought to be saved by Cesarean section. The life of the child ought not to be destroyed by a craniotomy operation. The first operation of this kind was performed by Horatio R. Storer, then of Boston, in 1860. Afterward Porro took up the subject, and his name has become indissolubly associated with the operation in both hemispheres.

THE PELVIC SYMPHYSES IN PREGNANCY AND PARTURITION.

By W. J. CONKLIN, M.D.,
DAYTON, OHIO.

During pregnancy the imperious demands of the embryo dominate the entire maternal organism, and correlated changes of structure and function are wrought in every organ of the body. These gestation changes are most pronounced in the organs directly concerned with the growth and development of the fetus; but the fact that the pelvic bones and articulations participate in them to a marked degree, although almost wholly ignored by later obstetrical writers, has been known since the days of Hippocrates.

The effort now being made in certain quarters to revive symphysiotomy and place it among the accepted obstetrical operations, together with the announcement that it has been chosen as one of the topics for discussion at the coming International Congress at Rome, invests the symphyses at present with more than ordinary interest.

The lesions of the pelvic symphyses which bear the special stamp of pregnancy and parturition may be classified as follows:

1. Normal relaxation.
2. Pathological relaxation.
3. Inflammation.
4. Rupture.

For want of time we shall confine our remarks to the first two conditions named.

I. Normal Relation.

Anatomists are by no means agreed as to the structure and functions of the symphyses, but the trend of opinion is very strongly toward the conclusions of Luschka that they are true joints, pro-

vided with synovial membranes, and capable of limited motion. In the adult male or unimpregnated female the pelvis may practically be considered a solid bony ring, but under the stimulus of pregnancy changes take place which are radical, very constant, and involve all the pelvic tissues.

These may be briefly stated to consist of a notably increased vascularity of the parts; the rough and irregular inter-articular cartilages become swollen and smooth; the rudimentary synovial cavities are fully developed and filled with fluid; and the ligaments are infiltrated with serum, elongated, and become less firm and resilient. In short, the softer structures undergo a general relaxation and softening, precisely similar to that which takes place in the vulva, vagina, and uterine neck. The swelling of the cartilages necessarily leads to an increase in thickness, which causes a slight separation of the articulating bones and consequent enlargement of the pelvic circle.

The questions of greatest importance, and about which there is the widest diversity of opinion, are as to the extent and constancy of these changes and the purposes to be subserved by them. Some authors hold with Stoltz that they are always of pathological import and that there is no ground for considering them in any way related to normal childbearing. Others, like Charpentier, Pajot, and Baudelocque, maintain that mobility at the pelvic joints is not only useless and unnecessary as an obstetrical factor, but actually retards delivery; while many others find in the swollen and softened cartilages merely an admirable provision to protect the uterus and its contents from hurtful jars and shocks, acting, in this respect, like the cushioned buffers of the railway cars.

Without multiplying quotations, it can be safely assumed that while the consensus of opinion is opposed to the doctrine that the puerperal changes in the symphyses tend to enlarge the pelvic diameters, or have decided obstetric value, there is, on the other hand, a respectable minority who contend for the affirmative of the proposition.

The question is not a new one. Up to the middle of the sixteenth century the doctrine that the pelvis opened like a hinge during the birth of the child was universally taught. It then became a subject of controversy, which, in a modified form, is still maintained.

That the mobility of the sacro-vertebral and sacro-coccygeal joints materially increases the antero-posterior diameter of the pelvic outlet is, I believe, admitted by all obstetricians, and needs no discussion.

Although medical literature contains a great many isolated reports of apparently normal pregnancies in which relaxation and movement of the symphyses was a notable symptom, the tabulated observations are, perhaps, not sufficient in number to conclusively settle the questions at issue.

Budin affirms, from the examination of more than eighty puerperal women, that a certain mobility of the pubic joint is always present in pregnancy, and increases as the pregnancy draws to its close; less marked in primiparæ, it increases with successive pregnancies; and, finally, that considerable mobility of the bones does not invariably lead to serious difficulty in locomotion.

Barnes very guardedly states that the bony pelvis is not absolutely rigid, but yields a little at the joints, which, with the yielding of the complementary ligaments, protects the intra-pelvic tissues from injury during labor.

Martinelli, basing his opinion on clinical observations, maintains that the different parts of the pelvis are quite movable during pregnancy and parturition, and constitute an indispensable condition of childbirth.

Lenoir obtained distinct movement at the pubic and sacro-iliac articulations in twenty-two subjects between the ages of eighteen and thirty-five, and asserts his belief that there is always a decided increase in the diameters of the pelvis toward the end of gestation.

D'Outrepont did not fail in a single instance to find decided separation of all the symphyses in his dissections of the bodies of women dying during labor.

Korsch, working in the laboratory of Prof. Slavjansky, of St. Petersburg, gives as one of the conclusions deduced from the examination of a large number of puerperal pelves, that the pregnant state not only tends to relax the ligaments, but also to increase the diameters of the pelvis at both the brim and the outlet.

Balandin, from an extensive study of the subject at the bedside and in the dead-room, concludes that there is normally a certain mobility of the pelvic joints in pregnancy which tends to facilitate delivery, and fully indorses the statements of Duncan with refer-

ence to the sacro-iliac symphysis. He also found the condition especially frequent in non-adult girls.

Matthews Duncan was an ardent champion of the affimative of the question. Accepting fully the statement of Zaglas that a certain degree of mobility exists between the sacrum and the iliac bones in the non-pregnant, he asserts with great positiveness that this mobility is largely increased during gestation. He describes these movements as "consisting in the elevation and depression of the symphysis pubis, the ilia moving upon the sacrum ; or, if the sacrum be regarded as the moving bone, it describes a nutatory motion upon an imaginary transverse line passing through the second sacral vertebra. By the elevation of the symphysis pubis (or nodding forward of the promontory) the angle of the inclination of the pelvis is diminished to the extent of one or even two lines ; the corresponding diameter of the outlet is increased probably about twice as much."

In harmony with this view he constructed a very plausible explanation of the positions involuntarily assumed by women in the different stages of labor.

A strong presumptive argument is drawn from the lower mammalia, in some of which the pelvic bones at the end of gestation fall apart from their own weight, and almost lose themselves in the adjacent soft parts. Robertson, quoted by Barnes, gives a remarkable instance in which a healthy guinea-pig, at full term, having been placed upon her back, the hinder extremities fell apart and lay flat on the table. When killed, the uterus contained three fetuses so disproportionately large in reference to the mother's pelvis that they could not possibly have been farrowed without some such special provision.

Admitting that separation of the pelvic joints does take place to a greater or less extent in many if not all women at term, its value as an obstetrical factor depends wholly upon the extent of the separation.

Lusk estimates that the distance between the pubic bones is increased twofold at the end of gestation. Velpeau once found the separation sufficient to admit readily the end of his forefinger. Boyer, Chaussier, Madame Boivin, Morgagni, Luschka, Smellie, and many others, have recorded cases in which the separation at the pubis ranged from one-half to considerably over one inch in width.

It is, however, probable that some of these cases were examples of pathological, not normal, relaxation of the symphyses.

In the discussion of the question the later results of symphysiotomy cannot be lightly passed over. The well-known experiments of William Hunter, undertaken at the suggestion of Smellie, and which virtually banished the Sigaultean operation from English-speaking countries, assumed to prove that a separation of one and one-half inches at the pubis was inevitably obtained by the laceration of the sacro-iliac ligaments. Dead-room experiments are, however, likely to lead to false deductions, from the fact that the elasticity and resiliency of the ligaments, which form such a notable feature of the puerperal pelvis, speedily pass away after death. Ainsiaux, of Liége, easily and safely obtained a separation of three inches at the pubic joint in recently dead puerperal subjects, but failed after the lapse of from thirty-six to forty-eight hours to get more than one and one-quarter to one and one-half inches without lacerating the posterior symphyses.

Dr. Harris, in a recent paper before the American Gynecological Society, concludes, after an exhaustive study of the subject, "that two inches and a half of separation *on the average* are all that should be claimed as safe in the living woman, although three inches, and even more, have been attained in operations where the patients made good recoveries and were able to walk well at the end of a month."

But nothing more is needed to refute Hunter's statement than to place it in the light of the brilliant record of the later symphysiotomists.

Since January 1, 1886, there have been fifty-two operations, twenty-three of which have been made during the current year, with only one death, due to septic infection before the operation. (Hirst.)

As near as I can learn, in this series of cases forty-nine children were born living, three of whom died within seventy-two hours after delivery.

Without going further into details, we conclude:

1. That a relaxation of all of the pelvic ligaments, articular and non-articular, takes place in normal gestation.

2. In some cases this relaxation reaches a degree sufficient to cause a perceptible widening of the pelvic joints and mobility of the articulating bones, but without marked symptoms or disability.

3. This relaxation is conservative and facilitates delivery by increasing the pelvic diameters and by favoring the dilatability of all the intra-pelvic tissues.

4. In rare instances this process exceeds physiological bounds, and causes pain and partial or total disability of the lower extremities.

This condition is distinctly pathological, and will next engage our attention.

II. Pathological Relation.

Abnormal or excessive relaxation of the pelvic symphyses is comparatively rare. Although there are no statistics to sustain the opinion, I am fully satisfied that it is not nearly so rare as one would infer from the scanty notice accorded it in modern obstetrical text-books. Beyond doubt, many of the milder cases are overshadowed by the vague pelvic pains and discomforts which are the natural heritage of the lying-in woman, or are wrongly attributed to some ill-defined lesion in the gynesic circle.

Two cases have come under my observation.

Case I.—Mrs. —— was seen in consultation several years ago, and I am unable to give the history in detail. It followed an easy forceps delivery in a healthy young primipara. At the time of my visit, near the end of the first week, the patient, aside from her helplessness, was having a normal convalescence. The attending physician had diagnosticated partial paralysis, and the mental depression following this announcement led to the consultation. I soon satisfied myself that there was no paralysis, but was in doubt as to the nature of the trouble. The solution came a few days later through the accidental discovery of the patient that, by fixing the hips with her hands the pain and disability at once disappeared, but returned on removal of the support. With this clue another examination disclosed distinct motion at the symphysis pubis, and confirmed the suspicion of relaxation. She made a prompt recovery.

Case II.—Mrs. ——, aged thirty-one years, primipara, a healthy brunette of splendid physique, was delivered of a male child weighing about eight pounds. The pregnancy had been exceptionally pleasant, her lightness of foot and pedestrian feats being a matter of special comment. The pelvis was large, which, with a very straight sacrum, allowed the vertex, L. O. A., to settle low into the excavation. The labor was sharp and short. The conformation of the pelvis interfering

with the forward extension of the head led to long delay on the perineum, and made us apprehensive of central rupture. From the completion of the delivery the patient complained of diffuse, subacute pains in the pubic region, and had difficulty in urinating. These were at first naturally attributed to the ordinary bruising of the external parts. It was, however, soon discovered that she was unable to turn in bed without assistance, and later, on attempting to get on her feet, could neither stand nor walk alone. An examination revealed nothing wrong about the abdominal or pelvic organs. The trouble was soon located in the pubic joint, and the pain and mobility of the bones plainly indicated its nature. In other respects the puerperium was normal. Fixation of the pelvis with a binder and rest in bed restored the joint in four weeks. Mrs. —— was again confined a few weeks ago, eighteen months having intervened since the former labor. The vertex presented in R. O. P. position. After a short labor the forehead emerged under the pubes, delivery having taken place without rotation. Weight of child, eight and one-half pounds. The relaxation of the symphysis did not recur, and convalescence was undisturbed.

No period of gestation possesses immunity from pathological relaxation of the symphyses, but the liability of its occurrence increases with the advancement of the pregnancy, and is greatest during labor. Moreau met with an obstinate case as early as the second month, and Courot one which followed an abortion at the same period. The cases which have been recorded prior to the seventh month are too numerous to receive special mention.

When the relaxation develops during pregnancy it always runs a protracted course, and according to Scanzoni, recovery never takes place until after delivery.

Two modes of onset are recognized: One, in which the premonitory symptoms are present during pregnancy and gradually deepen into helplessness; and another, in which the affection develops suddenly either during gestation or childbirth, the patient, perhaps, receiving her first intimation of trouble from a fall to the floor, or the inability to change position when recumbent. The postpartum cases usually belong to the second class, and not only come on without warning, but may be overlooked until the patient attempts to get around after the traditional nine days have passed. Constitutional symptoms are absent in uncomplicated cases. Pain, mobility at the symphyses, and inability to walk, is the tripod of

symptoms upon which the diagnosis rests. In the onset the pain is usually diffused, so much so that the patient has difficulty in accurately fixing its seat, but it soon becomes distinctly localized in the affected joint, whence it may radiate in various directions. The pain is aggravated by movement of the lower extremities, as in walking or standing, and subsides to a degree or totally when the patient is at rest.

The locomotory symptoms are perhaps the most distinctive. In cases of moderate severity walking is difficult, the patient soon tires, drags her limbs, or moves about with a peculiar waddling, duck-like gait, and is unable to stand on one foot.

Barker met with a case which, so far as my reading goes, is unique, in which the patient could stand with comparative ease and firmness upon either leg, but was unable to stand on both legs at once. In the severe types of the disease walking or standing becomes more and more difficult, painful, and finally impossible. When the relaxation creeps on slowly the woman is quite sure to be worried by apprehensions of paralysis.

The mobility of the bones forming the affected symphysis is easily demonstrated by manipulation, and at times is so pronounced as to produce a peculiar crepitus, both felt and heard by the patient. Not infrequently, when on her feet, the patient complains of a peculiarly distressing, bearing-down sensation, as if the abdominal and pelvic organs were being forced through the vulva.

Usually, all three symphyses are affected, but the pubic, probably from its more vulnerable position and different anatomical construction, exhibits, as a rule, the greater changes.

The etiology is obscure. Constitutional disease and the cachexias are no longer held to be necessary antecedents, but, on the contrary, modern researches confirm the statement of Debout that about one-half of the women affected are vigorous and healthy and free from constitutional taint.

The most generally accepted theory of causation is that the edema and consequent relaxation of the symphyses are due to some mechanical obstruction to the return of the blood through the pelvic veins.

This pressure may be caused by an overdistended uterus, as in multiple pregnancy or hydramnios (Jacquemier); by a growing uterus whose ascent into the abdomen is impeded by a narrow, con-

tracted pelvis (Scanzoni); by a fetus which has settled low in the cavity of a broad and capacious pelvis (Barker).

Barker is very emphatic in his advocacy of the doctrine that the large pelvis is the most important factor in the causation. He states that in all the cases which fell under his observation the patients had large, roomy pelves. In those seen before the labor began the head lay low in the excavation; and in those first seen after confinement there was a pendulous abdomen and difficulty in urinating, due to overdistention during pregnancy from the same mechanical cause which produced the serous infiltration of the tissues of the symphyses. Case II. of this paper offers many points strongly confirmatory of this theory. But, like all other purely mechanical theories, it fails to offer a satisfactory explanation of those cases, by no means few in number, which occur in the early months of gestation.

Undoubtedly the great underlying cause in all cases, as suggested by Snelling and others, is the physiological softening and relaxation incidental to pregnancy. In the presence of this predisposition, the merest accident, any sudden exertion, or the ordinary straining of labor, may be sufficient to precipitate an attack. We may find here a plausible explanation of the fact, attested by nearly every writer, that the affection is quite as apt to occur after easy as after difficult labors. And when in connection with this statement we recall another, which is of common report, that, in severe cases of relaxation of the symphyses developing during pregnancy, the labors are often, contrary to the expectations of the accoucheur, exceptionally short and easy compared with former ones, the inference seems legitimate that an extreme degree of relaxation does notably increase the pelvic diameters. This conclusion is confirmed by the observations of Desormeaux, Smellie, and others, that relaxation, so far from being a cause of dystocia, actually permits a spontaneous delivery in some cases where the disproportion between the size of the head and the dimensions of the pelvis would have otherwise rendered it impossible.

The prognosis is highly favorable. Many cases recover during the enforced rest of the puerperium, without special treatment, but, as a rule, they last from two to four weeks. Sometimes the affection runs a protracted course of months or years, as in cases reported by Courty (two years), Denman (eight years), Barker (fifteen years). In a few instances, of which examples are given by Lenoir, Robert,

Francis, Danau, and others, the tautness of the ligaments is never regained, and permanent lameness results.

The affection displays a marked proneness to recur in subsequent pregnancies. Meigs reports a XII-para who suffered from pubic relaxation during the later weeks of each pregnancy. The exceptions are, however, not rare, as in the second case herein reported.

The indications for treatment are perfectly met by absolute rest in bed and fixation of the pelvis by some mechanical device. As a temporary expedient the ordinary obstetric binder answers every purpose, but later, in obstinate cases, the metal girdle of Martin, the leather splint of Snelling, and various other appliances are of advantage in enabling the patient to get out-door air and exercise, and at the same time maintaining perfect immovability of the pelvis. Should inflammation of the symphyses ensue, it must be combated by the ordinary surgical resources ; and in the event of suppuration, early evacuation of pus and the adoption of strict antisepsis will be necessary to avoid a fatal termination. Permanent relaxation of the joints will necessitate the constant use of mechanical appliances, unless surgery lends a helping hand to repair the injury, —which, so far as I know, has not yet been done.

TUMORS OF THE ABDOMINAL WALLS.

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This subject is one in which I have always taken great interest, and is, likewise, one of vast importance. Let me say at the outset that under tumors of the abdominal walls I shall understand such tumors as have any connection with, or rather originate in, the soft covering of the abdominal cavity which is situated between the ossa pubis, Poupart's ligament, and crest of the ilium below, the border of the ribs and xyphoid cartilage above, and a line running at right angles from the crests of the ilium, on either side, to the end of the last rib.

As it becomes of the greatest importance to differentiate between tumors implicating the peritoneum, but originating within that cavity, and such as lie entirely outside, I shall have to refer to the former whenever such a differentiation becomes necessary. I shall touch upon hernias only in so far as it will be necessary to distinguish neoplasms and inflammatory tumors from them.

As these various tumors do not remain strictly circumscribed by the tissue in which they originate, I shall classify them as to their pathology rather than after the layer of tissue which may produce them. They will, therefore, have to be divided into three large classes: (1) inflammatory tumors; (2) neoplasms; (3) tumors of the urachus and round ligament.

Inflammatory Tumors.

I feel the necessity of speaking of these, since it often needs close observation to distinguish them from neoplasms. They may be divided into primary and secondary.

A primary inflammatory tumor may be acute or subacute, either

suppurating or non-suppurating. Any of the various layers may be the seat of such an inflammation. They are the more serious the nearer they are to the peritoneum, and the lower they are on the abdomen and in the subperitoneal cellular tissue—the latter for the reason that pus is apt to gravitate down into the loose cellular tissue about the bladder, and thus seriously endanger life.

The *etiology* is not always easily discerned. Traumatism is a frequent cause. Thus I have seen a large abscess in the rectus abdominis of a negro, resulting from the kick of a horse. This case resulted even though no disturbance in the continuity of the skin was observed. An inflammation or rupture of an abdominal muscle, especially of the rectus, following typhoid fever, is no uncommon cause of abscess. Gunshot and stab wounds, as well as hypodermic injections, are a frequent cause of suppurative tumors.

The *diagnosis* is easy as soon as fluctuation can be discerned, and is very difficult in the chronic form of the disease, especially when deep-seated. The following case will, I think, form an illustration of the chronic form:

Case I. *Tumor of the abdominal wall simulating a solid growth; operation; abscess; cure.*—Mrs. J. S., aged forty-five years, was referred to me by Dr. Gray, of East Orange, on April 12, 1892. She suffered with occasional attacks of gastralgia for years. Some weeks ago the Doctor noticed, during one of these attacks, that she had a tumor halfway between the umbilicus and ensiform cartilage. It was painful only when pressed upon. At the above date it gave her no inconvenience, except that it was sore when the corset bore against it. She had no fever. The woman is rather stout; has a tumor in the median line measuring five by seven centimetres, with sharply defined outline. The long axis of the tumor is in the long axis of the body. It is not painful on being handled, is freely movable when the muscles are relaxed, and fixed when they are contracted. It is hard and solid to the touch, and its posterior surface smooth so far as it can be reached. The diagnosis of a solid tumor of the muscles or deep fascia was made, and the patient asked to return for observation in two weeks. On April 26th she returned; there was no fever and but little pain. The tumor now measured seven by nine centimetres. The rapidity of its growth was suspicious as to its nature. On May 1st, while under an anesthetic, the great mobility of the tumor and its freedom from any adhesions in the abdomen were remarked upon, as was also a slight

edema over the tumor. An exploratory incision of an inch in depth brought pus and cleared up the diagnosis. She made a good recovery.

In acute cases the usual symptoms of an acute septic phlegmon will present themselves here as elsewhere.

Among its distinguishing symptoms will be fever, acute pains, and edema. When it is due to the rupture of a muscle the sudden pains caused by that accident, and the possibility of its following typhoid fever, must be taken into account.

The chronic form, as in the case above described, will show none of these symptoms, and an exploratory incision is often necessary, especially when it is deep-seated. The amount of adventitious tissue of fibrous density surrounding a chronic abscess in this region is sometimes truly wonderful, and gives the impression to the touch of a solid fibrous growth. At times, where the pus is within the sheath of a muscle, it will be restricted to those portions where there are tendinous adhesions or insertions, and this may guide us in our diagnosis.

The *prognosis* of the acute or chronic form is good under proper management.

The *treatment* is simple as soon as the diagnosis is established. Free incision, curettement, and drainage preferably by iodoform-gauze packing, will speedily cure the case.

The secondary inflammatory tumors do not concern us here to any extent. They are usually discovered to depend upon an inflammatory difficulty within the abdomen, as an appendicitis vermiformis, pyosalpinx, infiltration of urine, foreign body in the bowel, gall-stones,[1] or an empyema, necrosis of ribs or crest of ilium, etc.

The *prognosis* depends upon the nature of the cause, and the possibility of its removal is always more grave than a primary inflammation.

To differentiate between a large inflammatory tumor in the abdominal walls and a circumscribed peritonitis, we will usually find that the prominence, which is so marked in the former, is

[1] A few months ago I removed from an abscess, six centimetres above and to the right of navel, three small gall-stones. The patient had suffered with jaundice for some weeks.

absent in the latter; besides, there will always be a history of peritonitic irritation, such as vomiting, obstruction of the bowel, or tympanites. Frequently one can notice that the tumor is extra-peritoneal by a slight change in the percussion sound as the intestines rise and fall during deep inspiration and expiration, the percussing being done at the edge of the tumor. If, however, there is a circumscribed peritonitis, there is always the same note from the adherent gut, which prevents this slight change. A full bladder can readily be distinguished by catheterization from the tumor in question. Great difficulty will be experienced in differentiating between a deep-seated hypogastric abscess and an inflamed cyst of the urachus.

The differentiation from intra-abdominal tumors is easy so long as they are freely movable. Their freedom from the abdominal walls is easily demonstrated by their rise and fall at inspiration or expiration; or, when seated low in the abdomen, by placing the patient in Trendelenburg's position, when the tumor will glide up and its mobility be demonstrated. When there is a cystic adherent tumor, not containing pus, the aspirating-needle will certainly tell the story. It goes without saying, that all tumors freely movable in the abdomen would be such as have not developed as inflammatory masses in the abdominal walls.

Neoplasms.

From Gurlt's statistics of tumors, collected from three Vienna hospitals, we find that of 16,637 cases there were 43 in the abdominal walls. Of these—

256	were	atheroma,	1	in the	abdominal	walls.
194	"	angioma,	3	" "	"	"
318	"	lipoma,	4	" "	"	"
699	"	fibroma,	7	" "	"	"
848	"	sarcoma,	14	" "	"	"
11,131	"	carcinoma,	13	" "	"	"
102	"	papilloma,	1	" "	"	" (navel).

Vascular Tumors.—The angioma, simple or cavernous, occurs on the abdominal wall, as well as elsewhere in the body, and presents nothing that would interest the abdominal surgeon especially; suffice it to say that they have not been known to go beyond the

superficial fascia. The diagnostic features are the same as elsewhere. Usually they are congenital. I am not aware of any having been described as occurring at the navel. If such a case were presented for operation, it must be borne in mind that the peritoneum is adherent to the scar of the navel.

Cystic Tumors.—*Atheroma* and *dermoids* of the abdominal walls are rare, as but few of them have been described. According to Ledderhose no cases of the latter have been published occurring outside of the navel. It is probable that some described as dermoids have originated in the ovary and become adherent to the abdominal walls. These tumors, when at the navel, have a tendency to rise above the level of the skin, and therefore become pedunculated (Küster). They are very apt, on account of the poor circulation and pressure from clothing, to have their surface ulcerated.

Echinococcus.—These entozoa are exceedingly rare in the abdominal walls. Mandelung finds but one in one hundred and ninety-six cases. In the cases described it was noticed that the tumors were of exceedingly slow growth, Courty having seen a case that lasted thirty-five years. Ten years seem to be an ordinary time for their existence. An important point, according to Mouchet,[1] is that they usually develop in the subperitoneal cellular tissue, and most frequently in the median line and near the navel. They are described as being rarely irregular in outline (Gallez).

The symptoms in the earlier stages are entirely negative. The patient notices a tumor of small size, very slow growth, years passing by before it annoys him. When the tumor reaches a large size pressure symptoms show themselves. Thus also general dyspepsia and constipation are described (Gallez). As soon as an inflammation of the cyst shows itself, the symptoms become more urgent. Severe pains in the tumor are common, as is also fever. Rupture of the sac externally, with tedious suppuration, is apt to follow. This then becomes indistinguishable from chronic abscess with fistula.

The *diagnosis* is difficult. It is usual for echinococci to occur elsewhere in the body when there are any in the abdominal wall, and this may assist in the diagnosis. If, however, cysts have

[1] Montpellier Médical, 1871.

formed in internal abdominal organs, they will produce severe symptoms long before the cyst of the abdominal wall would. The characteristic hydatid fremitus has rarely been observed in this location (Mouchet). Fluctuation is commonly absent on account of the great thickness of the capsules enclosing the cysts. Its differentiation from other tumors in the abdominal walls or those closely connected with the peritoneum is almost impossible; especially is this the case when the tumor has reached a large size. Growths most likely to be taken for this kind of tumor would be adherent ovarian cysts, localized peritonitic fluid exudate, cysts of the urachus, and possibly abscess. Physical conditions peculiar to these diseases would have to help us in our diagnosis. Lastly, the chemical and microscopical examination of the fluid would probably tell the story.

The *treatment* would consist in incising the tumor and clearing out its contents. Stitching the cyst capsule of the skin and careful drainage have been recommended. Aspiration and injection of tincture of iodine have proven useless in the hands of Arnould, and only after incision was the patient cured. Whenever the cyst wall has become loosened from its surrounding capsule by inflammation, all may be extirpated. Great care must be taken in all these operations not to open the peritoneum, or at least to prevent the cyst contents from getting into the cavity, as fatal results would be likely to follow.

Hematoma.—This form of cystic tumor, if it may be so called, is rare except as a result of rupture of the muscle, following protracted typhoid fever, from external violence or over-exertion. It is interesting as a possible cause of the production of fibroid tumors [1]

The history, with the suddenness of its appearance and impossibility of reducing the tumor, the fluctuation in the earlier stages of the disease, and possible discoloration of the skin, would make the *diagnosis* probable. If, with all this, the ends of the ruptured muscle could be felt, the diagnosis would be certain.

The *treatment* would be expectant, unless suppuration should take place, when it should be treated as an ordinary abscess.

[1] Freund: Ledderhose, p. 58.

Subperitoneal Cysts.—Cysts of a subperitoneal variety are sometimes met with as an accidental discovery during operation for other tumors. The following is a case in question :

Case II.—Mrs. P., aged forty-two years, was seen in consultation with Dr. Diffenbach. She presented symptoms of obstruction of the bowel following an illness of several months, during which time all symptoms were referable to the pelvis. An abdominal section revealed an adeno-sarcoma of both ovaries and peritoneum. To the left of the incision, not connected with the pelvic organ, was a cyst of the size of a fist and entirely subperitoneal. It contained perfectly clear serum.

Kœberlé (Ledderhose) also describes two cases of "excessive development of the sub-umbilical lymphatic vessels," which formed into cysts of eight centimetres in size, and were discovered and removed during operation for ovarian tumors. There is a form of serous cyst about the navel, usually due to a hernia, the neck of which has become closed by adhesion. I have seen such cysts during the course of an abdominal section, and removed them with the navel. Roser describes such a cyst, of congenital origin, which he removed by ligature. It was covered by granulation tissue and contained a serous cyst.

Lipoma.—Lipomata are found : 1. In the subcutaneous tissue. 2. Between the layers of muscles—*i. e.*, in the cellular tissue between the muscles. 3. In the subperitoneal fat.

I fail to see the use of such a classification as Tillaux suggests :[1] "For clinical purposes they are divided into such as develop in the inguinal region and such as occur in the linea alba."

Those that occur in the subcutaneous tissue present nothing but what we find in the subcutaneous tissue elsewhere. There is, however, a form where it is difficult to distinguish between what is an abnormal development of fat and a tumor—so large and so circumscribed will be the deposit of fat on the abdomen.

When lipomatous tumors take on a rapid growth, their malignancy may be suspected. Owing to long-continued irritation, either from rubbing of the clothes or from a chronic congested condition, they are apt to take on a fibrous degeneration, and are then called

[1] Leon Gallez, p. 126.

fibro-lipoma. This variety grows very large. Tumors of forty pounds have been removed and large bloodvessels encountered.

On account of degenerative changes which these tumors undergo, it is well to recommend their early removal.

Lipomata of the intra-muscular variety are certainly of rare occurrence. Péan[1] describes them: Being located between the muscular layers, they would naturally be severely compressed and produce a sensation of a very solid tumor to the examining hand. Their diagnosis is exceedingly difficult, and probably the true nature of the tumor would not be made out until it had been extirpated.

The subperitoneal variety of the lipoma are those that must interest us most. Sometimes they simulate the subcutaneous variety by their peculiar displacement or protrusion through the median line. These tumors sometimes remain between the peritoneum and transversalis fascia, producing little, if any, symptoms, thus escaping recognition. At times, however, they protrude into the peritoneal cavity, become pedunculated, and even separated from their original attachments, thus forming perfectly free bodies in the peritoneal cavity. According to Virchow, these free bodies of the peritoneal cavity are usually fibro-lipomatous in character and were separated from such an attachment. When they have pushed themselves into and through the conjoined tendon at the median line, they form an important form, of which I shall speak at length. They have been variously described under many names. Gavengeot, in 1743, first described them, but thought that their contents consisted of a portion of the stomach, and thus called them "gastrocele." August Gottlieb Richter (1778, Bd. i. page 14) gives them the same name. He says, however: "Nicht sowohl weil der Magen darinnen enthalten ist, sondern weil er in der Magengegend entsteht." Gunz,[2] of Leipzig, soon discovered that they usually contained nothing but fat from the suspensory ligament of the liver or subperitoneal fat. Leville (1812) recognized the misnomer, and from their most frequent location called them, more properly, "hernia epigastrica." Vidal (1851) and Bardeleben[3] have studied and described this form of tumor minutely. The German term

[1] Ledderhose, p. 41.
[2] R. Dittmar, 1889.
[3] Lehrbuch der Chirurgie, Bd. iii.

"Fettbrüche" probably describes this form best, and is the form I must speak of in this paper.

As to the location of the tumor, it is most frequent between the xyphoid cartilage and the navel, at either side of the median line, most frequently to the left. At times it is found in the rectus muscle. This is rare.

The hernial ring is caused by a defect at the interlacing of the tendinous cords of the linea alba, possibly at the point of exit of the nerves or bloodvessels.

When an incision is made into the tumor the following structures are encountered: First, the skin; second, the subcutaneous fat; third, the subperitoneal fat; fourth, the peritoneum. These soon all become blended together so as to make their separation difficult. It is not in the province of this paper to describe those large herniæ which contain large portions of viscera, and are produced by immense separation of tissue as a result of abdominal section, wounds, or abscesses. They are usually easily distinguished from the other forms of tumors which I am especially asked to describe. The origin of these fat herniæ, so easily taken for lipomata, is frequently attributed to a fall or over-exertion. In a monograph by Bonnet, on the radical cure of hernia, he attributes three out of ten cases to this cause.

There are four forms in which the tumors in question present themselves:

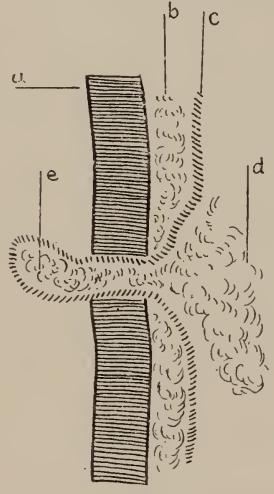
1. *Omental lipoma.* It is produced thus: A small protrusion of peritoneum through one of the bloodvessels or nerve apertures takes place. Into this a small piece of omentum slips, becomes adherent, and, owing to an irritation at the neck of the hernia from incomplete constriction, soon takes on growth. During its earlier existence it can often be reduced. Later, as it becomes larger than the opening in the fibrous sheath, it becomes irreducible and the source of much difficulty and annoyance. The accompanying diagrammatic drawing (Fig. 1), taken from Ledderhose, represents this form well.

2. A second form of hernia adiposa is where the lipoma grows on or over the hernial sac. These cases are apt to become cystic by inflammatory adhesions at the neck of the tumor. Virchow calls them "hernial hydrocele with peripheral lipoma formation." At times the peritoneal sac becomes obliterated, and nothing marks

its existence except a scar and adhesions at the parietal peritoneum. The accompanying diagrammatic drawing (Fig. 2) represents this form of tumor.

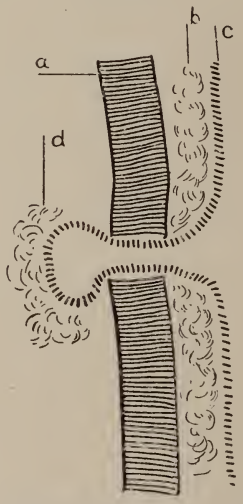
3. Wernher describes a third form of hernial lipoma. In these cases the hernial sac is not always present, and, if so, is of secondary formation, being drawn through the hernial ring by the lipoma. Its etiology is doubtful. Its formation is explained by a lobule of fat having protruded through one of the interspaces, described

Fig. 1.



a. Fascia transversalis. *b*. Subperitoneal fat. *c*. Peritoneum. *d*. Omentum. *e*. Lipomatous omentum.

Fig. 2.



a. Fascia transversalis. *b*. Subperitoneal fat. *c*. Peritoneum. *d*. Lipoma.

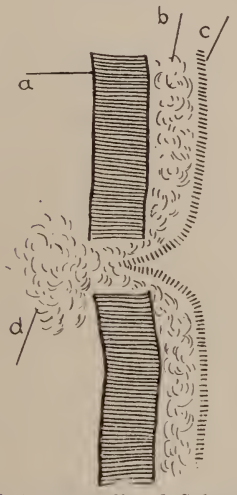
above, of the fascia transversalis of the linea alba. It then takes on a growth and possibly drags the peritoneum after it. Whether the second form, above described, is not originally of this kind, it is difficult to say. The accompanying diagrammatic drawing (Fig. 3) represents this form of tumor.

4. A fourth form has been described, where a subperitoneal lipoma is found inside of a hernial sac, and still not in the peritoneal cavity. This is difficult to understand until one has closely followed the formation of such a condition. Thus, when a lipoma is formed alongside and at the neck of a hernial sac, it may by its growth push the peritoneum below it and grow into this hernial

sac. The accompanying diagrammatic drawing (Fig. 4) will describe this form better than words.

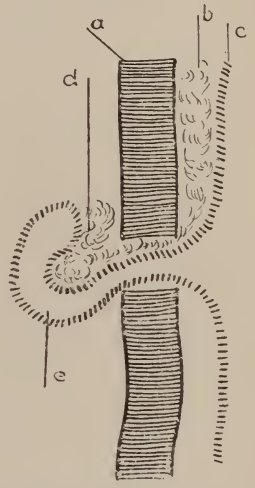
The *symptoms* of this difficulty are peculiar. The patient complains of severe drawing pains, especially on such exertions as coughing, stretching, or straining in the epigastrium. These symptoms may be only very slight, and symptoms referable to the nervous system be more prominent. Patients are apt to become hypochondriacs and lose their appetite. Dyspeptic symptoms

Fig. 3.



a. Fascia transversalis. *b*. Subperitoneal fat. *c*. Peritoneum. *d*. Lipoma.

Fig. 4.



a. Fascia transversalis. *b*. Subperitoneal fat. *c*. Peritoneum. *d*. Lipoma. *e*. Hernial sac.

supervene. Frequently these patients have been treated for years as dyspeptics. Gastralgia and enteralgia are usual accompaniments. It is evident that these symptoms are due to a dragging of the peritoneum at a point of fixation. That the symptoms are due to this difficulty is shown by the fact that removal of the tumor and closure of the fascia cure the patient. It is, therefore, of vast importance to look for this difficulty in all patients who have obscure symptoms of indigestion, gastralgia, or enteralgia. Strangulation occurs rarely, and less so when the tumor becomes large and is nourished by adhesion from without.

From what has been said it will be seen that the *diagnosis* is by

no means easy. The tumor is frequently no larger than from a bean to a hickory-nut, and is found with difficulty when the patient is a fat person. The examination is best conducted while the patient is in the upright position and slightly bent forward. The usual physical symptoms of hernia should be looked for.

The *differential diagnosis* between these fat herniæ and an ordinary lipoma must be naturally very difficult. When a traumatic origin or sudden appearance with pain can be demonstrated, or when the tumor was known to have been reducible at an early stage, then the diagnosis of a hernia adiposa is certain. As to the exact nature of its contents we shall still be in the dark, except that we shall know of its being a lipoma by its characteristic surface. If the tumor has undergone fibrous or cystic degeneration, its differentiation from a fibroma or cyst becomes impossible, and an exploratory incision a necessity.

The differentiation between a lipoma and a fibroma presents, as a rule, no difficulty. The lipoma is a lobulated, softish, movable mass (unless it be of very large size), while the fibroma is perfectly smooth and hard, not movable when the muscles are rigid. The differentiation between this and a sarcomatous tumor becomes more difficult only in the earlier stages of the latter. But here, also, we shall find the fixed condition of the tumor when the muscles are contracted, since the usual seat is within the muscular or tendinous structure of the abdomen. When the sarcoma becomes more advanced, the difference becomes more apparent. Their apparent fluctuation, the pain, the adhesions, possibly the appearance of the patient and rapid emaciation, and, lastly, their rapid growth, would lead us to suspect their malignant nature.

As a rule, lipomata of small size will rarely present themselves for *treatment*, as they produce no symptoms. Their extirpation is a simple matter here as elsewhere on the trunk.

When the lipoma is connected with a hernia of the median line, great care should be taken not to wound an intestine which might be contained in a sac. The same care should be taken with all lipomata found in the median line, as it may prove to be a lipomatous hernia. It is therefore best to cut the tumor in half by careful strokes with the knife until one feels sure that nothing of an intestinal nature is contained in the tumor. When a hernial sac is found, it should be drawn out, well ligated close to the fascia, the

superabundant tissues cut off, and the stump returned. The fascia should be stitched with fine silk or catgut, and the wound closed over it. It goes without saying, that careful antiseptic measures only will insure success.

Treatment by truss when the tumor is reducible is, as a rule, unsatisfactory. The application of a close-fitting abdominal supporter is of much greater value and comfort to the patient than the use of a truss.

Fibroma and Sarcoma.—Fibroma and sarcoma must be spoken of under one heading. It is difficult at times to say where one starts and the other ceases. There are in the main two sources from which these tumors originate: First, the skin; and, secondly, the muscular apparatus (fascia). The former will receive our attention first.

Fibroma molluscum is the name of a multiple tumor of fibrous character which is most commonly found in the skin. They are distinguished from the fibroids which originate from the fascia by their intimate connection with the skin, their frequent pedunculated form, their softish, pseudo-fluctuating character, and their mobility upon the subcutaneous cellular tissue. From lipoma they are distinguished by their smooth surface, rarely appearing lobulated. They have been removed for their large size; thus, Kosinski removed one from a girl of twenty years, weighing thirty-three pounds. Their removal must be directed by the ordinary rules of surgery.

Sarcomata of the skin are very apt to have a rapid growth, and frequently partake of a melanotic character, especially so when recurring after extirpation. They appear uneven and nodular, hard in recent portions of the growth and soft in the older portions. From fibroma they are distinguished by their rapid growth and painfulness. Their irregular surface has a tendency to ulcerate. Their growth extends into the surrounding tissue, and recurrences after extirpation and early metastasis are the rule. The importance of early extirpation cannot be impressed too much upon the surgeon.

For all forms of tumors originating in the fibrous tissue, Johannes Müller introduced the term *desmoid*. They are the common tumors of the muscular apparatus as compared with any other form. With rare exceptions they originate from the posterior sheath of

the rectus abdominis muscle (fascia transversalis), and very rarely in the superficial fascia.

A paper by Richard Lencke, "Ueber Fibroma des präperitonealen Bindegewebes," is no doubt a misnomer, as all his cases are tumors of the fascia transversalis. Continuing to grow, they separate and absorb the muscular tissue. They therefore naturally produce an elevation in the abdominal walls, but, on account of the large deposit of fat on the abdomen, rarely affect the skin. As a rule, however, they also grow toward the abdominal cavity. Thus they may be found to have gone as far as the loose subperitoneal cellular tissue, or they may become closely and inseparably adherent to the peritoneum, and even may break into and through that membrane (Volkmann). The latter ones are, however, most apt to be sarcomatous. Laterally they may grow to take in the muscles of the loin, and above or below become adherent to the bone of the pelvis or the cartilage of the ribs. Thus it happened that they were thought to originate from those structures and were pedunculated. The form of the tumor is usually round or oval; at times that portion of the tumor which is connected with the fascia transversalis becomes contracted, and then the form of a shirt-stud results.

The size of the tumor, of course, varies. Commonly a patient will not seek the advice of a physician until the tumor has reached a considerable size, or because of the pain it produces. These growths are fed by the deep epigastric, which enters the rectus at about eight centimetres above the ossa pubis; also, the superior epigastric, internal mammary, and lumbales. Those who have closely observed the origin of these tumors agree that they almost invariably originate in the fibrous sheath of the muscles, and never lie loose between them, as they would did their growth start in the muscles. The tumor, as a rule, is quite dry and not very bloody, though the blood which oozes from the large cut veins on its surface is sometimes amazing. This is due to their inability to retract.

Structurally they are composed of dense fibrous tissue when non-malignant. When sarcomatous all those forms occur which are found originating in fibrous tissue. The growth of the fibroma takes place by the production of intercellular fibrous substance. In this way it appears that the cellular tissue is in some portions

of the tumor larger than in others, and therefore it will often be difficult to tell whether one portion of the tumor is sarcomatous or still purely fibroid. At times the fibrous tissue will accept (by metamorphosis) a colloid or mucoid appearance. Never, however, has a fatty degeneration been observed. A calcareous condition has been reported by Gauche. A sphacelated, ulcerated, and gangrenous condition, however, is not infrequent, and hemorrhage of a deadly character has occurred. Very frequently the growth begins during pregnancy and continues to grow with more or less rapidity. Suadicani (Esmarch) has observed a cessation of the growth after confinement, as has also Reed, of Cincinnati. Complete disappearance by absorption has not been recorded, though Dr. Reed says that "at the time of her accouchement it had practically disappeared." The female is more prone to suffer from these tumors than the male. In males they are most apt to be recurrent; thus, in four cases in men reported by Volkmann, only one case remained without recurrence. In these cases the recurrent tumors were of a soft, sarcomatous character.

Etiology. Concerning this very little is known. Grätzer (Cohnheim) considers that its foundation is laid in the embryo. It seems doubtful, however, whether the origin of these homologous tumors can be explained by his theory. Traumatism, to which Herzog,[1] Freund,[2] and Atkins[3] attribute their cases, is charged with this form of tumor; in fact, the observations within the last three or four years, as has been shown by quite a number of cases, have demonstrated the probability of this as a prominent factor in the production of fibroma and sarcoma.

Symptomatology. As a rule, patients will not present themselves to the doctor until the tumor has reached a large size, or unless it is in some portion of the body where pressure is exerted upon it. We can, therefore, consider that they produce but little trouble in the early stages. When they become large they become troublesome by compression of the abdominal organs, by the disfigurement of the patient, or by the inconvenience produced by the pressure of the clothing, as in my own cases. When they become still larger, gangrene of the skin over the most elevated portion of the

[1] "Ueber Fibroma der Bauchdecken," München, 1883.

[2] Ledderhose.

[3] Atkins: "On Excision of the Abdominal Wall for Traumatic Malignancy."

tumor, and thus septic infection or deadly hemorrhage, may take place. It has been observed that these tumors are more sensitive during menstruation than at any other time. Under ordinary circumstances they are but slightly sensitive to touch.

Diagnosis. The fact that between eighty and ninety per cent.[1] of all cases will be women must be taken into consideration when a diagnosis is made; also, that the tumor rapidly increases during a pregnancy, though it may have been present before or of very slow growth.

By inspection the tumor will appear above the surface of the abdominal walls, if it has reached any large size and the patient is not overfat. The skin, possibly, is covered by large veins; this will be more so the larger the tumor appears. During respiration the tumor will be lifted forward and backward only, the patient being on her back. When the tumor is of excessive size, forced respiration might cause an upward or downward movement of the growth. There will be no lifting up of the abdominal walls from the tumor on deep inspiration, as is so often seen in intra-abdominal growths.

By palpation the tumor will be found to be very circumscribed, at times perfectly smooth (unilobular), at others uneven and rarely nodular (multilobular), and generally of solid, board-like feel. Occasionally fluctuations will be noticed, as was observed in Dr. Weir's case. If not too large, and occurring in a multipara, the fingers of both hands can almost pass around the tumor and the posterior smooth or nodular surface may be distinguished; this, however, will not be the case when the patient is directed to contract the abdominal muscle, as then the tumor will appear immovable. This must be an important point in the differential diagnosis between a tumor situated within or outside of muscles and fascia; for when the tumor is situated in the subcutaneous cellular tissue it will be movable, no matter what condition the muscles are in. If the tumor is intra-peritoneal, any contraction of the muscle will not send the tumor back to its place, as would be the case with a tumor situated in the muscular or fibrous layers of the abdominal walls. If the tumor were in the deep layer of the abdominal muscles, any contraction would tend to throw the tumor into the abdominal

[1] In a collection of Ledderhose, ninety of one hundred cases were women.

cavity; if in the outer layer, the tendency would be to raise the tumor above the level of the abdominal walls. The tumor will not often be sensitive to pressure.

The percussion note, of course, will be dull all over the region of the tumor. Percussion will often help us out in differentiating between tumors of the abdominal walls and an enlarged spleen, especially when the growth is situated in the left hypochondriac region. In one of my cases there was a distinct tympanitic resonance between the tumor and the location of the normal spleen dulness. Thus it was, also, that tympanitic resonance between the left lobe of the liver and the tumor could be noticed only when the patient made a deep expiratory effort. While the dulness over the liver rose and sank by inspiration and expiration, the dulness over the tumor remained stationary. Whether there would be resonance between the kidney and the tumor, if the tumor were situated in the flank, would depend upon the size which the tumor had reached and how far it was pushing itself into the abdominal cavity. In case of a tumor of the kidney, the percussion over the lumbar region of the affected side would be dull, while if it were a desmoid the percussion sound would be normal. The dulness of the tumor or a full bladder could only be mistaken if the bladder was not carefully emptied of its contents or fluctuation not discovered. The same might be remarked to some extent about a large amount of feces in the colon.

If the tumor is in the lower part of the abdominal wall, possibly closely connected with the ilium and very large, the diagnosis becomes more difficult and the examination under an anesthetic would probably give the required result. When the tumor is in this region and becomes very large, its differentiation from uterine fibroids, solid tumors of the ovary or round ligament might become impossible, and exploratory incision becomes the proper procedure. A case of localized peritonitis, which originated during pregnancy in the left hypochondrium and simulated a desmoid in many respects, was only understood after aspiration and careful thermometric observation. It seems to me hardly possible that there could be any difficulty in differentiating between malignant tumors of the intestine or omentum and a desmoid.

An adherent displaced kidney might be taken for a tumor in the abdominal walls. But the form of the kidney, and resonance

over that portion of the lumbar region where the kidney was missing, and the muscular symptoms of which I have just spoken, would probably give the necessary information.

The sense of touch given by adipose tissue, whether as a lipoma of the omentum or subperitoneal or subcutaneous fatty tissue, is so very different from that of a desmoid that they could hardly be confounded with each other. Thus, also, an umbilical hernia containing a lipoma of the omentum would present a soft, lobulated condition, which is never the case in the desmoids.

A ventral or umbilical hernia could, if strangled, produce a tumor which is very hard, but the symptoms of strangulation and the outer appearance of the tumor, and other points in the history of the case, would leave no doubt as to its nature. Cysts of the urachus could be confounded with solid tumors only when small and when there was complete absence of fluctuation. Dermoids of the abdominal wall are rare and always occur at the navel, while, according to Labbé and Rémy, fibromata have never been found in that location. The treatment is extirpation, and the sooner this is done the better for the patient. While the tumors are still small and in a location where the peritoneum is not closely adherent to the deep fascia, extirpation without opening the peritoneum may be resorted to, and must be our aim, but it will rarely succeed. As a rule, however, extirpation with resection of the peritoneum will be, under careful antiseptic precautions, the safest by guarding against recurrence should the tumor prove to be sarcomatous. When large surfaces of denuded peritoneum are left after removal of the tumor, gangrene may result from want of sufficient blood-supply.

The *prognosis* of the non-malignant fibromata by removal is quite good. Billroth lost but two out of sixteen cases, and these were in the pre-antiseptic days of surgery. In Ledderhose's collection of one hundred cases sixteen per cent. died. Many of these cases were also operated upon before the days of antiseptic surgery.

The prognosis without extirpation in a malignant case is certainly bad, while in non-malignant cases it is, to say the least, doubtful, if not fatal, unless in such fortunate cases as Suadicani's or Reed's. Thus, also, will partial removal result disastrously, as Esmarch's second case would prove.

Carcinoma.—Under this head we must distinguish those of primary and those of secondary origin. The latter do not concern us here; they are, for the most part, the growth by contiguity from intra-abdominal tumors, as from cancer of the stomach, gall-bladder, bowels, etc. The most frequent location for a primary carcinoma is the navel. There have been well-authenticated cases recorded of primary carcinoma of the skin of other parts of the abdomen. They are very rare and present nothing of special importance to distinguish them from cutaneous carcinoma of other portions of the body. Carcinomata of the navel have been found of as great interest as they have been rare and important. Fabricius von Hilden described and operated on a case as early as 1652.[1] I find the case often quoted, but it seems to me, from the drawing accompanying the observation, that it is probably a papilloma. The extreme rarity of primary tumors generally in this location is shown from the fact that Bérard[2] could report but three cases, while E. Küster has been able to add but five more in 1874, and O. Burkhart in 1889 reports twelve cases not published by the foregoing. Of all these cases, eighteen were probably some form of cancer, while the rest were papillomata (two) and dermoids (one). It seems to be doubtful in five of these cases whether they were primary, as no post-mortem examination was made. In the author's experience he has seen but one true epithelioma of the navel.

Secondary carcinomata of the navel are certainly very frequent and commonly follow cancer of the liver, bowel, or peritoneum. From what we would call a local predisposition to cancer the navel should be the seat of cancer more frequently. It contains a scar, frequently the remains of cylindrical (ductus omphalo-entericus) and flat (urachus) epithelium. It is frequently the seat of chronic eczema and long-continued irritation from uncleanliness.

All forms of cancer have been described, from a scirrhous to a colloid cancer. The course of the disease is usually a rapidly fatal one on account of its proximity to the peritoneum, and the probability of its ulcerating into that cavity if it be an ulcerating cancer.

[1] Fabricius von Hilden, Observation lxii. Fünftes Hundert, 1652 (in possession of the author), 27.

[2] Dict. de Méd., vol. xxx., 1827.

According to some operators, secondary growths have been noticed in the axillary as well as in the inguinal glands and those of the retro-peritoneal space.

The *diagnosis*, when there is any doubt, will probably lie between a carcinoma of the proliferating kind and a granuloma or papilloma. Even here the microscope will sometimes have to decide. Those tumors which have a tendency to spread under the skin may certainly be considered under the malignant variety. If the tumor is a growth of early life, carcinoma may be excluded, and one of those forms of tumors spoken of above must be considered.

Concerning the *prognosis* after extirpation, much cannot be said from such an experience as is at present at our command.

The *treatment* would be early extirpation. There are no blood-vessels of any size that would have to be considered. An elliptical incision on both sides of the navel in the vertical direction, and complete removal in healthy tissue, including the peritoneum, seem to have been the aim of all operators since the antiseptic era. To leave the peritoneum, which is immediately adherent to the navel, would not be wise or even always practical. In my opinion a special examination of the umbilico-hepatic ligament and the urachus would be advisable as to their freedom from disease. Any adhesion to the omentum would be the best treated by removal of the adherent portions. The closure of the wound would be made by the methods now usually practised in all abdominal sections. In fat individuals it would probably be necessary to divide the skin above and below the navel so as to expose the navel proper.

Tumors of the Urachus.

Tumors of the urachus present themselves chiefly as cysts. I have been unable to find any record of primary malignant disease of the organ. A case of secondary colloid cancer of the urachus following cancer of the navel is related by Heu and Jaquin.[1] Cysts of the urachus have been understood to some extent only within the last few years, and chiefly through the agency of Hoffmann, Tait, W. Roser, and Wolff. There was a time when it was thought that cysts of the urachus would rarely, if ever, reach a

[1] Union Médicale, 1867, No. 112.

size sufficient to require the interference of the surgeon. Luschka was the first who predicted the probability of large cysts of the urachus, and that they would need operative interference.[1] This prediction was soon verified by Prof. Hoffmann.[2] He describes four large cysts which he proves to be cysts of the urachus. It is very likely that cysts of this character have been removed and called "parovarian cysts adherent to the anterior abdominal wall."

The urachus, the remains of that portion of the allantois remaining within the abdomen, is lined with flat, rounded epithelium which, according to Luschka, is surrounded by fibrous connective tissue and elastic fibres. The latter gradually change in the lower third into non-striated muscular tissue, are inserted into the detrusor urinæ, and may be looked upon as a prolongation of this muscle, as the lining epithelium may be looked upon as a continuation of the epithelium of the bladder. It is important to know this, as frequently the character of a tumor will not be understood except from these fundamental structures of the urachus. The urachus in the young adult is commonly pervious, unequal in its diameters, presenting the appearance as if it were knotted or had excrescences. Its perviousness usually ceases for a short distance from the bladder, and its entrance is shown by a small point of retraction of the mucous membrane at the fundus of that viscus. In old adults complete obliteration is very often attained.[3] It happens that at the contracted portions of the canal adhesions of its surfaces take place, while the intervening portion expands into small sacs, often developing laterally and containing a small quantity of yellowish or brownish fluid. When these sacs expand into tumors, they may grow so much laterally as to appear to have a lateral origin instead of one in the median line.

As a rule, however, large cysts originate from the whole urachus, excepting those small portions situated at the navel and the bladder. The sizes of the cysts vary greatly, and may attain one sufficiently large to contain fifty litres of fluid.[4] The contents of these large cysts are usually of a serous character, at times containing the

[1] Luschka, Virchow's Archiv, 1862, Bd. xxiii.
[2] Archiv für Heilkunde, Bd. xi.
[3] Förster, Handbuch, Bd. xi. p. 531.
[4] Hoffmann, Archiv für Heilkunde, Bd. xi. p. 373.

products of inflammation, pus, and fibrin. Lawson Tait, in his book on *Diseases of the Ovary*, describes several cases where the inflammatory condition was well advanced and contained "thirty pints of brown, thick fluid, with an abundance of flaky, yellow deposit consisting chiefly of pus mixed with large fibrinous masses." Frequently, owing to fatty degeneration of the tissue, small lumps of fat are discovered in the fluid. Corpora amylacea are said to have been discovered by Luschka. When there is any communication between the bladder and urachus, urine will get into the cyst, and its contents then are decomposed urine. At times it will occur that cyst fluid escapes through the bladder, making an alternate increase and decrease in the size of the tumor; thus, in twelve cases described by Tait, three were connected with the bladder in this way.

Cysts have been known to be produced where there was an obstruction to the urine in its normal passage. The urine would gradually be forced into the urachus, and even escape from the navel.

When the tumor becomes large, the cyst wall sometimes fills up the whole pelvic cavity, stripping up the peritoneum on the posterior wall of the bladder and anterior surface of the uterus and broad ligament; anteriorly and above it has been known to strip up the peritoneum to the border of the ribs.[1]

The *history* of these cases is that of a gradual and slow growth; sometimes, however, it seems to have been awakened to new energy and takes on a rapid growth. Thus, in a case of my own, the patient had noticed a tumor of small size for about ten years, when it suddenly took on rapid growth during a pregnancy, and contained five litres of fluid by the third month. Incision and drainage cured her. She miscarried two weeks after the operation. This miscarrying after the operation is by no means rare (Tait and Roser). This very slow growth was noticed in one of Hoffmann's cases.

The *diagnosis* is by no means easy, unless the tumor is small and its intimate connection discovered with the abdominal wall. When the patient has a relaxed abdominal wall, or is under the influence of an anesthetic, its posterior wall can be felt, as also its

[1] Tait, Journal of the British Gynecological Society, November 6, 1888.

intimate connection with the navel. This last symptom is of great importance. In a small tumor with a thick wall there might be difficulty in distinguishing fluctuation, and, if so, a solid tumor of the abdominal walls might be thought of. Here the aspirating-needle alone would give the desired information. When the cyst has reached a medium size, the diagnosis is still possible by physical exploration. Its differentiation will chiefly be from that of a par-ovarian cyst, ascites, chronic (tubercular) peritonitis, localized peritonitis with a serous exudate under the anterior abdominal wall, and an over-distended bladder. The usual mobility of a cyst of the ovary, and the rise and fall of the abdominal wall by the interposition of intestines between the tumor and abdominal walls during deep inspiration and expiration, will usually exclude this form of tumor. This holds good only so long as there are no adhesions between tumor and abdominal wall. In my own case this symptom was so entirely absent that I could readily diagnose between a non-adherent parovarian tumor and a cyst of the urachus. In ascites the change in the level of the fluid is pathognomonic. The means of differentiating between a cyst in question and the condition of a localized peritonitis with serous effusion, when it occurs in this location, are very meagre. Fever does not hold good in the one, when there may be an inflamed cyst in the other. Subjectively pain may occur in both. It is said that in a peritonitic exudate gradual increase of dulness from the intestinal border to the tumor proper is very marked, owing to the adherent intestine, while in a cystic tumor the dulness is very abrupt.

In tubercular peritonitis, where the intestines are bound down by adhesions and fluid rises above them, we must rely entirely upon the probability of finding nodular masses in the abdomen, or upon exploratory incision. For those who think it proper to aspirate, the finding of flat, rounded epithelium of the bladder variety, as well as the discovery of such elements as the urine might contain, would give a valuable clue to the diagnosis. This leads us to the possibility of its being confounded with a distended bladder; in the male the catheter, and in the female this and vaginal examination, would settle that portion of the question. But even at an operation or an exploratory incision the nature of the tumor may be questioned. Here the excision of a portion of the cyst wall and its histological character will tell the story.

Portions of the lower part of the cyst should be removed for this purpose; here we should expect its being lined with flat epithelium and surrounded by non-striated muscular fibre. When there remains a fistulous opening at the umbilicus and cyst contents escape by that opening, or when the cyst was known to empty by the bladder, the diagnosis is made with absolute certainty. When the tumor has become very large, there is no chance for differentiating it from other large cysts except by exploratory incision.

The *treatment* of all these cases is by operation. In small tumors complete extirpation of the sac would be the proper mode of procedure. Its connection with the cellular tissue is very loose and its separation easy. The peritoneum is probably not so devoid of bloodvessels as to become gangrenous. When the tumor has reached a large size, however, and a large piece of peritoneum would become stripped from its underlying tissue, gangrene is likely to result. This was Mr. Tait's experience.

In these cases, then, the proper thing is to incise the tumor and drain. The most disastrous thing for all such operations, whether it be a cyst, a chronic abscess, or fistula, is too small an incision. The incision should include all the tissue between the navel and pubes, if the cyst be any way large. To keep this open properly it is necessary to stitch the cyst wall to the skin, and the sac should be filled with iodoform gauze after thoroughly drying it by rubbing with sterilized napkins. Such a dressing I have left in for ten or twelve days without a change, and the cyst was obliterated in six weeks. The scar became a very strong one, and no hernia followed.

If the cyst is complicated by an opening into the bladder, it would probably be advisable to denude the tissue around it and unite the edges, or else split the tissue between bladder and cyst wall and unite the edges with fine silk or catgut. If this were not done, a urinary fistula will result (Tait and Roser). It is important that complete obliteration should take place, otherwise a chronic fistula will remain, which will resist all forms of treatment short of complete extirpation. Such a patient, operated upon in England, was sent to my office by my friend Dr. Fewsmith. The odor from the patient's sore was indescribable and made life a torment to himself as well as his surroundings. To prevent such an accident it might be wise to swab the cavity with a five per

cent. solution of chloride of zinc, if it did not show an early attempt to granulate and contract. Fistulæ of such cysts at the umbilicus should not be treated by ligature, cautery, or suture, but by complete division of the tissue from the umbilicus down to the lower end of the fistulous cyst, or even down to the bladder, as the case may be. If there be an opening into the bladder, this also must be closed, as described above.

Tumors of the Round Ligament.

These interest us only so far as they occur in the canal from the internal to the external opening. We must speak of them because of the importance of distinguishing these tumors generally in this region. There are three forms met with in the organ: the cystic, the fibro-myoma, and the sarcoma.

The cystic is not often met with. An interesting case presented itself at St. Barnabas' Hospital, of Newark, on September 11, 1891:

Case III.—A. L., aged thirty-two years, Hungarian, married, no children, has been complaining for three years of a tumor in the left side which occasionally gave her much pain. Physical examination revealed a tumor, of the size of a hen's egg, in the left inguinal region and in the position in which the round ligament is situated. It is freely movable in its small diameter, but not in the direction of its long diameter—*i. e.*, the course of the round ligament. It is smooth except at its upper end, where there is a slightly nodular appearance. It is fluctuating. There is no impulse on coughing. Aspiration removed clear yellow serum. *Diagnosis:* Probable cyst of the round ligament. Tumor was aspirated several times, but always returned. On February 20, 1892, she was admitted, and the whole cyst laid open from the upper portion of the vulva to the internal abdominal ring. At the latter place there were several small cysts. From the appearance of the tissue it was evident that it had developed in the muscular tissue of the round ligament.

I have seen a similar case described somewhere, but am unable to lay my hands on it at present.[1]

[1] Since this has been in print I have received an article by J. Felix Etienne Münch, 1892, describing a large number of cases under the title of Hydrocele Muliebris.

Fibro-myoma and fibroma are found at times in this region. They are of slow growth, smooth to the touch, and painless, rarely multilobular, and of elongated form. When small, they are movable, and when large become fixed by forcing themselves into the tissue around them. They are distinguished from desmoids of the fascia occurring in this region by their mobility when small; when large, the differentiation becomes very difficult. Not infrequently the uterus contains myomata at the same time. They must also be distinguished from irreducible hernia, whether in the form of an omental lipoma, hernia of the ovary, epiplocele, sarcoma, or cysts. The history and the softness to the touch will be sufficient to differentiate the former two from the solid fibroma or fibro-myoma. If an ovary be in the hernial sac, the peculiar pain on pressure, the absence of an ovary on the corresponding side in the pelvis, and the stationary size of the tumor, will be found. The cysts will give early fluctuation, and thus are distinguished from the solid tumors.

Sarcomata of this portion of the round ligament are of very rapid growth, frequently cystic, usually take on an elongated form, and involve the large labia, are exceedingly malignant, metastasis occurring early in the abdomen and lungs. Through the kindness of Dr. Servus, of New Providence, N. J., I saw a young single woman with a large tumor, which started at the internal inguinal ring and took in the whole vulva down to the commissure. It had been growing for four months. The tumor was so large as to cover the whole external genitals, and measured fifty-five centimetres in its greatest diameter. It was semi-fluctuating and slightly fixed. Diagnosis, cysto-sarcoma of round ligament. Its removal necessitated an incision of forty-five centimetres, and proved it to be a cysto-sarcoma of the round ligament. She left the hospital in about two weeks, apparently well. Her doctor reported that she began to have a return in about six weeks, and died from sarcoma of the lung in less than four months.

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DISCUSSION.

Dr. Robert T. Morris, of New York.—Mr. President: I was very much pleased with Dr. Ill's paper, and simply desire to refer to one point, and that is in reference to the treatment of cysts of the patent urachus with caustics, or the treatment of cysts of the abdominal wall due to patent urachus by using strong caustics. These cysts generally are typically embryonal in character and construction, and the more caustics we use the more inflammation we set up about the region of the cyst. In two cases in which I have operated I have found marked adhesions between the peritoneum and the abdominal wall and intestines or omentum in the vicinity, as a result of "curing" these patent urachus cysts by caustic injections. It is a great mistake and a point that is altogether overlooked by the practitioner who does not realize the true character of the growth. I think those of us who wish to refer to this subject of tumors of the abdominal wall will do well in the future to consult Dr. Ill's paper in the *Transactions*. He has covered the ground in an elaborate way.

Dr. L. S. McMurtry, of Louisville.—I think the Association is under obligations, and the profession also, to Dr. Ill for grouping together tumors of the abdominal wall and making a study of them in one paper. It is a subject that is very interesting, and until operative work became so common in and about the abdomen these tumors were very generally misunderstood. I only wish to add one thing to Dr. Ill's paper, namely, one of the tumors to be found about the abdominal wall. Perhaps Dr. Ill has alluded to it in his paper, as I observe he did not read all of his manuscript. I exhibited a pathological specimen here last evening of scirrhous cancer of the umbilicus, which was a typical illustration of that condition. In conversation with the Fellows, I have found only one gentleman who has seen a similar case—Dr. Ross, of Toronto. I simply mention it in this connection as one of the tumors that we are liable to meet in the abdominal wall. This was treated by thorough excision, *i. e.*, by taking out

a section of the abdominal wall. The patient has made, so far as known, a complete recovery.

Dr. C. A. L. Reed, of Cincinnati.—When I read the announcement of Dr. Ill's paper, and in connection with it read his excellent contribution on this subject which appeared in one of the earlier volumes of our *Transactions*, it occurred to me he would come before us and thresh over some old straw. Dr. Ill, however, has not duplicated any of the matter contained in his previous contributions, and therefore his present paper is a well-timed and deserving supplement to his other contributions.

I was in a position to discuss his first contribution on this subject. I had had some experience along the line mapped out in his former paper, but I am entirely at a loss to discuss his essay on the present occasion from the standpoint of personal experience. I have seen a few lipomata, particularly of the subcutaneous variety, and I have in my possession a photograph of a very striking specimen of this sort, the photograph of the tumor having been taken in connection with the patient, who was operated upon by Dr. Dandridge at the Cincinnati Hospital, the tumor weighing ninety pounds. Those of deeper origin, which spring from beneath the fascia, I have not observed, unless it was perhaps in an unconfirmed case. I was once called in consultation by a surgeon of considerable reputation, and found preparations made for an ovariotomy. There was very extensive abdominal enlargement, but there was an absence of the fluctuation of cystomata and also of that semi-fluctuation which we find in lipomata of subcutaneous origin and location. We were in the hands of an ultra-conservative on that occasion, and the attending physician insisted that before an exploratory incision were attempted, an exploratory puncture be made. Puncture was employed to the depth of about five inches, with a perfectly dry tap. That scared off the ultra-conservative physician referred to, who objected to any operation whatever, and carried the family with him; hence nothing was done. In thinking that case over with all of its peculiarities, it remains in my mind as one of the deep lipomatous growths located beneath the fascia. There were no ovarian symptoms, no uterine symptoms, and manifestly the growth from its history and point of development originated in the abdominal wall.

As to the method of procedure, I seriously question the expediency of cutting down upon and through these growths as a preliminary step in the operation, as I understood it to be recommended. We may be mistaken in diagnosis, and a bold stroke such as indicated might

lead us into a hernia with disastrous results. I prefer making an elliptical incision, just as I have done in dealing both with tumors of the abdominal wall and with herniæ. In both instances a safe approach to the tumor is effected, and all the conditions placed under safe control before anything further is attempted.

Dr. Ill has alluded, with characteristic precision, to the question of differential diagnosis in these growths, and I am glad that he has elaborated this subject so amply, yet from a practical standpoint I question the necessity of wasting time in attempting to determine the exact variety of these tumors. Unless they are the smaller lipomatous growths, I believe they all need operation. Their rapid development indicates the possibility of malignant degeneration, and they should be condemned on suspicion.

I was not a little impressed with the suggestion of treating cysts of the urachus by caustics. I have never seen a distinct cyst of the urachus in the sense of an isolated sac. I have seen several cases of distinctly dilated urachi with which I did not meddle, because they did not appear to offer any symptoms. If, however, we are dealing with a large cyst of the urachus, we have an extensive surface covered over with epithelium, and in the treatment of that sac and for the purpose of securing its obliteration we are compelled to destroy all of that epithelium. Where we leave epithelium on proximal surfaces adhesion does not take place; hence, in the treatment by caustics, it occurs to me these cysts should be treated in the open way, so that the interior of the cavity can be placed at command, and the utmost care taken to destroy all the epithelium that may be presented.

I simply join with what I believe to be expressed by other Fellows of the Association, that we feel a sense of personal obligation to Dr. Ill for his research and industry in this direction, and we trust that his two papers may appear conjointly and made more accessible to the general profession than in separated volumes of our *Transactions*.

Dr. J. H. Carstens, of Detroit.—Independently of a few small lipomata, I have never seen in my own practice any of the tumors described by Dr. Ill. I have seen two cases, however, in consultation with another physician: one a melanotic sarcoma of the umbilicus, almost like the case exhibited by Dr. McMurtry last night, except that it grew rapidly. It was removed, but still recurred in a short time and destroyed the patient. The other was a case where there had been a few years before some inflammation and pain in the right side, and a tumor developed about the size of a pigeon's egg on that side. It had caused no trouble for years, but of a sudden the man

received an injury, whereupon it became inflamed and sore. He sought a surgeon, who operated and found a small encysted tumor, but no one could imagine what that tumor contained. It contained a number of gall-stones, and was entirely separated from the abdominal wall. It evidently was the result of an inflammation and adhesion of the gall-bladder anteriorly, the formation of stone, this gradually working through the abdominal wall, just as Dr. Ill has described. The opening was finally closed ; the gall-stones became encysted, lying there for years ; they were irritated by the injury, and removed in the way described. I think this case should be recorded in connection with the paper ; hence I report it.

Dr. W. P. Manton, of Detroit.—In my paper to be read to-morrow morning I intended to report a case of fibroid tumor of the abdominal wall. I have seen several cases of dilated urachus and one or two small lipomata. This is the only fibroid of the abdominal wall that I have ever met with, and it presented several points of interest, so that I think it will be well to report it now in connection with Dr. Ill's paper, and omit it to-morrow morning. (See Dr. Manton's paper.)

The patient was a young and delicate-looking Swedish woman, who had entered the Northern Michigan Asylum some three years before (1887), suffering from puerperal insanity. The records state that she was the wife of a laborer, and that three weeks previous to her admission she had given birth to a child. Her mental ailment had come on immediately following delivery. In March, 1890, the attendants discovered that the patient's abdomen was enlarging, and examination revealed a tumor which extended laterally from near the median line to the right wing of the pelvis, and upward from the pubes to just below the umbilicus. It was noted that the growth was hard, non-fluctuating, and apparently pedunculated. Three weeks later, the record states, the growth had increased in size, and had become so noticeable through the clothing that it gave the patient much concern to conceal its existence. By April the growth had extended upward to the lower margin of the ribs and across the median line toward the left, and "stood upward from the surface with the prominence of a gravid uterus." Fluctuation could not be made out, but it was thought that, from the rapid increase in the size of the tumor, it was probably an ovarian cyst. The patient fancied herself pregnant, and was rather pleased at the state of affairs. At the request of Dr. J. D. Munson, Medical Superintendent, I operated for the removal of the growth. I cut down and found a tumor outside of the peritoneum, although it dipped down so into the pelvis that it actually impinged upon the layer

of peritoneum between it and the uterus, so that I doubt very much whether a careful vaginal examination would have revealed the nature of the growth. The tumor was easily shelled out of its bed; there was, however, considerable hemorrhage from a number of large vessels beneath the skin. The patient made a good recovery. The delusion as to her pregnant condition disappeared with the removal of the growth.

Dr. Robert T. Morris, of New York.—I would like to say to the Fellows that when they have specimens of morbid growths from the umbilicus they will do well to examine them for mesenteric remains. Two years ago, in Berlin, I presented a paper, published in the *Transactions of the Tenth International Medical Congress*, in which I propounded the theory that in almost all cases of malignant growths from the umbilicus we find also mesenteric remains. If observers could furnish data bearing upon the subject, it would be of value to us.

Dr. A. H. Cordier, of Kansas City.—I believe there is one class of tumors occurring occasionally that the Doctor did not mention, namely, a cystic condition of the round ligament. While this is not strictly a parietal tumor, yet it is as much so as the urachal tumors. I have seen one case of the kind in which the sheath of the round ligament was distended to the size of a large cocoanut. It was removed by abdominal section, by simply tapping the growth through an abdominal incision, letting out the fluid, which was very thin, and cutting off the thin cyst at the entrance of the ligament into the abdominal walls. Wells has reported two solid tumors of the round ligament, both (like my case) occurring on or in the ligament of the right side.

Dr. A. Vander Veer, of Albany.—The paper of Dr. Ill belongs to a class which perhaps come under the head of labor-saving papers for the busy practitioner. When he reaches a difficult case for diagnosis, he thinks, perhaps, there is not sufficient time to look over the literature of the subject thoroughly, yet has in his mind some such work as this. Dr. Ill takes up the subject absolutely unbiased, does not attempt to carry out certain preconceived ideas, but gives us practical, conclusive instructions in making the diagnosis in a class of tumors that are exceedingly rare and obscure. I speak of this from a practical experience. Two years ago I had occasion to write on retro-peritoneal tumors, a subject akin to this. In looking over the subject and searching the journals and authors, I came in contact with

a case bearing upon the subject; but, as Dr. Ill has covered the ground, I will not dwell upon it.

My own practical experience has not been great in tumors of the abdominal walls, but the few cases I have seen have impressed me very decidedly. One case, which I was called to see some two years ago, and in which I afterward operated and reported the case, I will refer to now. The cyst was connected with the urachus in a young woman, eighteen years of age, which had given her great annoyance from the age of fourteen, particularly during the past two years of her life, from a discharge and disagreeable odor present. She was treated by several physicians with all known forms of injection, carbolic acid, etc. I laid open the cyst thoroughly well, dissected down near the fundus of the bladder and packed with iodoform gauze, as described by Dr. Ill, and had the satisfaction of seeing her cured. I cut so near to the peritoneum that I was fearful afterward lest hernia would occur. I have had the opportunity of seeing her lately, and there is no appearance of hernia.

Another case that I was called to see in consnltation with Dr. Townsend, of Albany, proved to be a dilated ureter. Dr. Townsend was not sure as to the nature of the tumor, which was located on the right side. It fluctuated distinctly, but did not give the patient much pain. The woman was twenty years of age and unmarried. I was in doubt at first as to its nature, the diagnosis lying between a parovarian cyst or possibly a dilated ureter. There was an absence of some of the symptoms of parovarian cyst, nor could we isolate it from the body of the uterus, as it seemed fixed at that point; but the fluctuation was very distinct. Dr. Townsend emptied the bladder and finally decided to resort to the use of the aspirator. He drew off about six ounces of fluid, which presented all the characteristic conditions of urine. Afterward Dr. Townsend introduced a drainage-tube, and the patient ultimately recovered. The case was strange to us all at the time.

In regard to tumors of the abdominal wall proper, some three years ago I was called to see a prominent business man in Albany, who had a tumor located in the right inguinal region that extended down into the scrotum, but so closely associated with the abdominal wall that I could not define it sufficiently to separate it from the inguinal canal. The history was a tumor growing from above downward; there was no impulse on coughing, and no evidence of true hernia; the tumor had grown to great size, and had the characteristic symptoms referred to by Dr. Ill. The patient had indigestion, a driving pain, and was losing flesh to a degree that prevented him from going on with his

business. He was examined by the family physician and two others. The former introduced a small trocar, but obtained nothing. After that I saw him, and looked upon his case as one of omental hernia. We placed him in a position with the hips elevated to test the effect of gravitation. This made no impression. He finally consented to an exploration. I began my operation with the expectation of finding an omental hernia, and with the further intention of removing it and the sac above. I cut down to the growth and enucleated it from each side. The tumor went far up in the inguinal canal. It was separated without much difficulty, and proved to be one of the fatty hernial tumors like those that Dr. Ill has described.

Another case is that of Mr. T. B., of Albany, a business man, who presented himself with a small tumor situated to the left of the umbilicus, of dark appearance. I believed it to be a melanotic tumor. It was plainly situated in the walls of the abdomen. I made a clean dissection, but it reappeared very small, like a split pea; caustic then was applied thoroughly, whereupon it healed, and so remained for a few months. The case then passed into the hands of another surgeon. It proved to be one of melanotic sarcoma. There was no portion of the body that was not infiltrated. I made a thorough dissection, went down deep through the muscle, yet the tumor returned.

Still another case of recurrent fibroid tumor of the abdominal wall is as follows: Mr. W. F. H., aged forty-two years, school-teacher by occupation. Family history good. Says that in February, 1871, he first noticed a small lump in the skin upon the left side of the abdomen. It was of a dark purple color, and the centre was streaked with deep purple rays. This continued to grow, but was removed by Dr. I. J. Moxley, of South Granville, N. Y., July 25, 1871. Primary hemorrhage occurred after the patient had ridden a distance of five miles. The wound was opened up and not brought together again, but allowed to heal by granulation, this covering a period of three months. From that time on he continued his work as a teacher during the winter and a farmer during the summer; remained in fairly good health; but in the spring of 1878 noticed that there were two or three small lumps forming around the old cicatrix. These grew somewhat slowly, but in August, 1882, had increased to such a size that his clothing chafed them and gave him much distress. The mass presented about the size of his two fists, described as looking about the color of a ripe tomato. In January, 1883, he visited a cancer doctor at Rome, N. Y., who, after an examination, stated that he could do nothing for him. He also saw Dr. Flandrau, of Rome,

who advised an operation, and upon returning home his family physician, Dr. Gillis, took him to Dr. Hinkston, of Montreal, where the tumor was successfully removed. The wound made by the operation was eleven inches long and seven inches wide. About a week after the operation Dr. Hinkston grafted skin from the right arm, but this was not a success. However, the wound improved and was healed in about four months. In the spring of 1885 he noticed a small lump appearing at the right side of the old wound, which grew slowly until March, 1886, when Dr. Jason Cooper, of Trout River, P. I., applied a poultice to destroy the growth. After continued poulticing a large part of the tumor sloughed off, but not entirely. The patient describes much suffering from the application of this poultice. In the summer of 1887 another lump began to form somewhat above and a little to the centre of the main cicatrix, and in November of that year began growing rapidly. This presented a peculiar surface. It grew in the shape of a toadstool, the outer surface being raw and bleeding frequently. In two of these bleedings he lost blood sufficient to cause syncope. In March, 1888, Dr. Pearl, of Bangor, who had treated him on different occasions to control the bleeding, cut out the remainder of the tumor, together with the larger growth, making a wound six by eight inches. He was out of doors within four weeks, and the wound healed in about four months. About the time that his wound was healed he felt a sort of stiffness of the muscles of the right side of the navel. This feeling increased, and another lump became visible. This was very apparent in March, 1889, and in August Dr. Pearl injected cocaine and removed it, navel and all. This wound was about two and one-half by three inches, and took three months to heal. In March, 1890, another lump began to show at the upper side of the old scar. This grew gradually until August, when Dr. Pearl, assisted by Dr. Bradford, and while the patient was under the influence of chloroform, dissected it out thoroughly, but the operation was a difficult one. Before this wound was thoroughly healed another small lump was found on the skin on the left side and below the previous scars. Dr. Pearl again injected cocaine and removed it. When the Doctor had operated before, April 14, 1890, he noticed a small growth just below the ensiform cartilage, but did not think it safe to remove it. This gradually increased, and when I saw him, July 30, 1891, it was about the size of a turkey's egg, had deep attachments, and rested just below the sternum. Patient came to the Albany Hospital, where I operated July 31, 1891, making a careful dissection down through the abdominal walls to, but not including, the peritoneum, then tied, bringing down two parallel pieces of skin from

the under surface of the ribs, doing a plastic operation, and closed the surfaces. The wound healed kindly; the patient left the hospital August 7, 1891; has made a good recovery, and remains well up to the present time. In giving me more the particulars of his case, he states that in the spring of 1888 a lump appeared at the upper side of the old scar and grew rapidly for a short time, looked red and inflamed, was sore and pained him much. He poulticed it with figs steeped in new milk, and in about two months' time it disappeared. After the operation in March, 1889, when the wound was nearly healed, another lump began growing on his right breast. When about the size of a large bean he showed it to Dr. Pearl, who suggested that they keep watch of it, and if it continued to grow he would remove it; but this one disappeared without any treatment whatever.

Dr. Ill (closing the discussion).—Dr. McMurtry has remarked as to the extreme rarity of carcinoma of the navel. I can say that I have collected twenty-one cases of carcinoma of the umbilicus, from which I have excluded three as probably of another nature, which makes eighteen. This collection extends so far back as 1827. I have seen but one case. It is extremely rare.

As to Dr. Reed's remarks, it seems to me that the differential diagnosis ought always to be attempted. I do not believe that we ought to cut down upon a tumor without having exhausted all means for a diagnosis. Those who are teachers are under obligations to their students to endeavor to make such a differential diagnosis. I do not say we can always reach it, but it is better to do so. As to the incision that Dr. Reed speaks of, I do not think he means it for a simple lipoma or a fatty hernia. In the portion of the paper relating to tumors of the umbilicus I have suggested an elliptical excision as the best. For a fatty hernia a simple, plain incision, extended to any size you like, will give you all the room necessary for the removal of such a growth.

There seems to be a little misapprehension as to how the free fibrolipoma of Virchow is formed in the abdominal cavity. (Here Dr. Ill explained by means of the blackboard how this tumor is formed.) As it grows it pushes the peritoneum in front of it, and the constant movement of the intestines up and down will gradually produce a neck until the tumor is torn off.

The President has spoken of the melanotic tumor of the abdominal skin. I have in the course of my paper stated the fact that sarcomata of the skin of the abdomen are usually melanotic, and their return after extirpation is almost inevitable if of a melanotic type. I desire to thank the Fellows for the kind reception accorded my paper.

TWO UNUSUAL CASES OF FIBROIDS.

Removal by Abdominal Section.

By A. B. MILLER, M.D.,
SYRACUSE.

My reason for presenting these cases to the Association is that they are unique, differing from the usual history of tumors of this character. I report them with the hope that they may aid in diagnosticating and deciding upon methods of treatment in similar cases.

Case I.—Mrs. M., of an adjoining county, wrote me February 10, 1892, that she was suffering from a hardening of the peritoneum which she had been led to believe would soon cause her death by affecting the vital organs, and she desired to know if any method of treatment could be adopted which would alleviate her condition.

On February 16th she visited me at my office and related the following history: Aged thirty-seven years, married; one child, aged thirteen years; her general health good, excepting some pain in right side, low down; habits normal. She stated she was strong and well until two years previous, when she had an attack of peritonitis confining her to her bed several weeks. During her convalescence a slight enlargement was observed in the right iliac region, which increased rapidly from that time until three months ago, when she suffered from a second attack of peritoneal inflammation much more severe and general than the first. Menstruation had been normal during her whole menstrual history, no marked pain attending the same.

Physical examination, on inspection, showed the abdomen much more distended than pregnancy at full term, being quite symmetrical from the symphysis pubis, arching over to the ensiform cartilage; bulging of the ribs of the right side more perceptible than the left. On palpation the tumor was found to be hard, firm, and symmetrical, with no irregularities on its surface, and with less resistance in the anterior

superior portion. Position of tumor more to the right side and fixed, not changing either by pressure or by changing the position of the patient. Digital examination *per vaginam* located the uterus slightly above the normal and freely movable. In consultation with my much-esteemed friend, Dr. A. Mercer, a surgical operation for removal was advised as the only means of relief.

On March 7th, at the House of the Good Shepherd, in the presence of several physicians, with the usual corps of nurses, and after the usual preparation, an exploratory incision was made. Owing to the growth being fixed to the right side, and the history leading us to suspect that adhesions would be dense in the pelvis (as this had been the seat of pain), I was much surprised to find that, below, the growth was movable, but fixed above; and recognizing a firm, hard growth, the abdominal incision was lengthened to the symphysis pubis below, and upward sufficiently to admit the passage of the growth. In the upper part of the abdominal cavity, and anteriorly, it was firmly fixed to the omentum. Before opening the peritoneal cavity the omentum could be readily seen, and on its surface large, distended bloodvessels the size of a finger and running parallel with the incision. Firm traction was made on the growth to raise it from its bed, and while this was being done by my assistants I enucleated it from the omental adhesions, which extended nearly to the diaphragm, by means of my fingers. The growth was found to have derived most of its nourishment from the establishment of the circulation through the omentum. Still, this was not enough to sustain it, and as a result disintegration had taken place in its upper part and a cavity had been formed. This was punctured with a trocar, and three pints of dirty, offensive fluid drawn off through the canula, draining it as thoroughly as possible; but, owing to the walls being so friable, in the effort to free the tumor from its adhesion to the omentum the sac was freely punctured with the finger, allowing the contents to escape into the abdominal cavity. All bleeding-points of the omentum were ligated, and hemorrhage arrested except what would naturally escape from the abraded surfaces. The growth was then raised from its bed and found to be attached to the fundus of the uterus by a short pedicle of considerable size. This was then clamped with a fenestrated clamp without difficulty, as the capsule was all that remained adherent, the growth being nearly enucleated from its seat of origin. The peritoneum covering the uterus was closed by means of the shoemaker's stitch through the fenestra of the forceps. This was the only growth involving the uterus, the size and shape of which was normal in appearance, as were also the ovaries and tubes. The clamp was removed, and, there being no hemorrhage,

the organ was dropped. Owing to the fact that the peritoneal cavity had been bathed by the offensive septic matter escaping from the cavity of the tumor, it was washed freely with sterilized water, the omentum spread out, and the abdomen closed in the usual manner. Owing to the discharge of septic matter in contact with the abraded omentum, a localized inflammation, resulting in suppuration, took place just beneath the abdominal incision at the upper part. This prolonged the convalescence for a couple of weeks. She now reports herself better than she has been in years, and is engaged in her usual vocation.

Case II.—Mrs. H., admitted to the hospital April 27, 1892; aged fifty-one years; married at twenty-two; mother of two children, aged twenty-seven and twenty-nine years. On inquiry the following history was elicited: Thirteen years ago she first noticed an enlargement in the side the size of a button, which apparently remained stationary for three years. She then noticed a perceptible enlargement and gradual increase in size until two years ago, since which time the increase has been very rapid. At the time the growth was first noticed she was confined to her bed with inflammation of the bowels for several weeks. Change of life occurred at forty-eight, previous to which time there had been no menstrual irregularities. The abdomen was greatly distended and fell over the symphysis pubis, so that the enlargement rested on the patient's thighs when in sitting posture. The abdomen measured forty-eight and one-half inches in its greatest circumference, was symmetrical and regular in outline, both to the sight and on palpation. Percussion yielded negative signs.

Owing to the large size of the growth and the great distention of the abdominal walls it was impossible to tell whether it was adherent or otherwise by ordinary means of diagnosis. As a result of the abdominal pressure the uterus was found prolapsed to the third degree, and by digital examination a hardness was appreciated through the vaginal walls, which filled the pelvis. The general condition of the patient was bad, the face being expressive of ovarian tumors in their last stage of development. Owing to the pressure on the diaphragm respiration was short and quick, pulse 108, temperature 100.5°. On the 29th, Dr. H. D. Didama was called in consultation and an abdominal exploration was decided upon. The patient accepted the chances, and the following day the operation was performed. On entering the peritoneal cavity the tumor proved to be an immense fibroid. The sound revealed the absence of adhesions, excepting low down in the abdominal cavity on the left side. Owing to the enlargement of the growth it was necessary to extend the incision from the pubes below to the ensiform cartilage above, before it could be removed from the abdominal cavity.

On the left side folds of the broad ligaments containing the fimbriated extremity of the Fallopian tube were found to be reflected on to the side of the growth, which had the appearance of adherent intestine. Had we known positively it was not, some little time would have been saved. As soon as these attachments were severed, the pedicle, which found its origin from the broad ligament of the right side, was secured by simple ligation, it being so small that transfixion was unnecessary. The enlargement that had been felt *per vaginam* proved to be the lower end of the tumor, that had shaped to the pelvic cavity.

The time consumed in operating was not long, but, owing to the length of the incision and the removal of so large a tumor from the abdominal cavity, the shock was pronounced. She responded well from the anesthetic and passed a comfortable night. Pulse at 6 A. M. following the operation, 140; temperature, 101.8°; voice strong; she expressed herself as feeling rested and much pleased that the tumor had been removed, At 1.30 in the afternoon, pulse 142, temperature 101.6°, respiration a little hurried and attended with some rattling of mucus in the throat which was very annoying to her. Nourishment at this time was ordered—champagne, half-ounce doses, alternately with peptonized milk. Temperature rose to 102.6° at 6 in the evening. At 12 midnight pulse had fallen to 124, good volume, and the temperature 101.6°; respiration still hurried, but voice strong. She asked for morphine, stating that it had been her custom to use it at bedtime, that it would give her rest, and she would be stronger in the morning when the doctor called. She had scarcely made the request when she suddenly expired, at 12.20 o'clock.

In the first case the irregularity in outline which is noticeable in fibroids was absent, also hemorrhage which we might have expected in its early history. Had it been possible to determine the nature of the growth when presented at my office, no other treatment could have improved it, and possibly the life of the patient would have been sacrificed in the effort. One valuable method of diagnosis was omitted in this case that might have aided in the diagnosis—viz., traction on the cervix; still, owing to the dense adhesions above, this might have yielded negative results.

Fibroids seldom reach so great a development as in Case II., and are irregular or nodulated. There had in this case been no symptoms attending menstruation to indicate the presence of such a growth. There is marked similarity in these two cases. The diagnosis of fibroids in the last seemed rather improbable from the

fact that the tumor had developed more rapidly after the menopause than before.

The weight of the first was seventeen pounds, including the contained fluid; of the second, over fifty pounds. The first made a perfect recovery; the second could have been relieved, with but slight danger of fatality, had an operation been attempted before it reached such an enormous size and at a time when the recuperative powers would have been greater. To my mind these two cases show that a positive diagnosis cannot be made by the history and physical signs alone at all periods of tumor development. Fortunately for us, Tait has publicly stated that it is impossible to always arrive at a positive diagnosis before entering the peritoneal cavity; and Thomas, in one of his latest contributions to abdominal pelvic literature, advises that an exploratory incision should be made in all doubtful cases, and appends a long list of recoveries where death must have occurred had not this means been resorted to, attended as it is, under our present aseptic and antiseptic precautions, with but slight or no danger.

DISCUSSION.

Dr. L. S. McMurtry, of Louisville (opening the discussion.)—Mr. President: Dr. Miller has given us an interesting clinical report. His paper illustrates some points in regard to myomata of the uterus that are very important and very instructive. In the first place, I will call attention to the fact that he has brought before us two typical specimens of the two varieties of uterine fibroids. The first case he describes is a round, smooth tumor that had undergone degenerative changes and that had a suppurative cavity on its interior, which those who have wrestled with these tumors will recognize as being a typical example of the soft, œdematous myoma, which is so prone to undergo cystic degeneration and, later, suppuration. Thus, tumors of the kind that are only cured by their removal—I do not believe they undergo the changes that many of the fibroid tumors do, as has been shown. The second case is a typical illustration of the multiple nodular fibroid tumor, that is not usually so active in its growth as in the case described by Dr. Miller. Another feature of this tumor is not so very rare—although formerly we were taught that these tumors disappeared almost entirely

—that it does not cease to grow at the menopause. The patient did not develop the tumor until after she was forty-eight. She was fifty-one when operated on. Dr. Miller says that for the first few years it was not active, or that it was not active until after the menopause. We have been taught until recent years that these tumors amount to nothing; that if a woman twenty-five or thirty-five years of age applies for treatment, the doctor says that they will disappear at the menopause. These tumors are common. We find them at post-mortem examinations. Sometimes, although it is very exceptional, they kill patients, and are not controlled by any medication. I have to deal with some myself that have been treated by hypodermic injections of ergotine and by the internal administration of ergotine to control hemorrhage and shrivel the tumor—treated internally, externally, and eternally for a year or so without any result, except to give the operator the most difficult task he can undertake.

In regard to the first case, I must congratulate the Doctor on his skilful management of it. It was a case of myomectomy. The puncture of the peritoneum was managed well. Dr. Miller was fortunate in this case in being able to control hemorrhage from the place where the pedicle was removed, and I take it the pedicle was a small one. The President will tell you when he discusses this subject that he has had an experience with small surfaces. After removing a pedunculated fibroid the temptation is great to snip it off and sew it up. There is great danger of bleeding after the patient has come out from the anesthetic and the circulation is restored in the capillaries.

In the second case I am inclined to think that Dr. Miller would have preferred a hysterectomy if he had not done so beautifully with his myomectomy. In the second case, it is also a great temptation to tie the pedicle of a uterine fibroid and drop it. It is a very dangerous practice, and while it will succeed in some cases, yet it is very risky to trust it at all. I am correct about that, am I not?

Dr. Miller.—The pedicle was attached to the broad ligament. It was a fibroid of the broad ligament.

Dr. McMurtry (resuming).—I was of the impression that it was a myoma of the uterus, consequently there can be no criticism upon the method of treatment adopted by the Doctor. This case illustrates one point. In a recent paper I endeavored to call attention to and verify the position with statistics, that there is danger of delay in the removal of these tumors, and that the profession generally is responsible for that delay. As Dr. Miller said in his paper, nobody could have made this diagnosis until the abdomen was opened. No man could have

made a differential diagnosis between a fibroid of the ligament, situated as the Doctor describes, and a fibroid of the uterus. Delay, as in this case, accounts for loss of the patient. The patient is told that the tumor is not malignant, that it is a harmless kind of thing, that it goes away at the menopause, let it alone; and it is treated in a conservative way by all manner of local applications, perhaps by internal medication until an attack of peritonitis makes an operation almost hopeless; except in the case of one with a large experience in dealing with these tumors an operation is impossible. I dare say there are not a dozen gentlemen in this room who have opened the abdomen with the idea of removing some of these tumors.

In regard to the treatment of fibroids of the uterus by hysterectomy, that will furnish another opportunity to discuss this subject. It is a subject of so great importance, and I have given so much attention to it, I cannot but call attention to the practical points illustrated by Dr. Miller in his admirable paper. The fact that these tumors undergo suppurative and degenerative changes is well known, and they are associated with analogous changes in the appendix. Pyosalpinx is a common cause of inflammatory changes. These tumors are dangerous to leave. The longer the operation is deferred the more difficult it is to remove them on account of the changes and adhesions which take place. I venture to say, as we get these tumors earlier and remove them, as electricity is abandoned in their treatment, the mortality of supra-vaginal hysterectomy in uncomplicated tumors of this character will be reduced to as low a rate as ovariotomy at the present time. These tumors do not cease at the menopause.

(The discussion at this juncture was postponed until the afternoon session, and Dr. McMurtry asked to continue it.)

Mr. President, I utilized Dr. Miller's paper to bring forward two or three points in regard to fibroid tumors of the uterus which were illustrated by his paper. The President has suggested that, inasmuch as the essayist who was to introduce this subject has missed his train and cannot be with us this afternoon, the Association would doubtless discuss the subject generally. In the time allotted to me I will present a few points in regard to fibroid tumors of the uterus for our consideration. Of course, the Association will pardon the desultory remarks which I may make, as they will be entirely impromptu. I will introduce the subject by a brief recital of some clinical experiences of my own, which will illustrate some points in the operative treatment of fibroid tumors of the uterus; and I wish to recite the first case of supra-vaginal hysterectomy I ever did, in order to illustrate one feature

—that is, the diagnosis in fibroid tumors of the uterus, particularly that variety of fibroid known as the soft, smooth, œdematous, mushy fibroid which undergoes cystic degeneration and suppuration. It is the wife of a physician, twenty-eight years of age, who was travelling in Europe, and consulted Mr. Mosley Thornton. He gave a diagnosis of ovarian tumor, and advised its removal. The family returned from Europe in September. I saw the case in December. Having such respect for Mr. Thornton's opinion, I prepared myself to find an ovarian tumor, and I think I found it quickly. I found a fluctuating, smooth tumor, that arose almost to the end of the sternum and occupied the entire abdominal cavity. The patient was a young woman and had never borne children. So sensitive was she about the tumor that she arranged her dress and skirts in such a way that very few persons in talking to her suspected that she had a tumor. On asking her to attire in a night dress I found her as large as the ninth month of pregnancy. The tumor fluctuated distinctly. I prepared for an ovariotomy, opened the abdominal cavity, and I did not know until I plunged the trocar into it that it was not an ovarian tumor. I turned the uterus and tubes out and did a supravaginal hysterectomy. She made a good recovery. She is quite a society lady, dances well, and is now in every respect a useful, active wife and woman. This is an illustration of how difficult it is to diagnosticate a soft myoma of the uterus that is œdematous. I do not believe in some cases it can possibly be done before the abdomen is opened.

I allude now to the prognosis of these tumors. We are in the habit of reading in our text-books too much, and the great body of general practitioners of medicine and specialists in this department of surgery and practice tell patients that they have nothing but a little fibroid of the womb, non-malignant; that it won't do any harm; that at the menopause it will go away. I do not believe there is any advice more fallacious, more harmful. I do not believe there is any one thing that has cost more lives than that. You had an illustration this morning in the case reported by Dr. Miller, where the tumor did not take on rapid growth after the menopause had occurred. She lost her life, and because an operation was delayed to a time when she had no strength to repair the lesion. The operation was done with skill. The tumor was not of the uterus, but of the broad ligament, which, for the purpose of illustration, answers the same. A fibroid tumor of the uterus does the same thing. Let me not be misunderstood. These tumors are peculiar. Many times a simple exploratory incision has been sufficient to remove one of them without touching or doing anything

to the tumor—has caused it to disappear, particularly the nodular fibroid. The second class is the nodular multiple fibroid, which will undergo degenerative changes, and the soft, mushy, œdematous fibroid, which will not disappear. They go away by the menopause; they sometimes go away without any treatment whatever—but this is exceptional. In the majority of instances they undergo changes and take possession of the abdomen, and by pressure destroy the patient.

There is one other thing that I wish to speak of in connection with the prognosis—namely, complications. These tumors present at times great difficulty. I have never seen the interior of an abdomen in which there was a fibroid tumor of the uterus that was not accompanied by diseases of the uterine appendages. Pyosalpinx is a common complication of these troubles. In the operation I did on the first day of September for fibroid of the uterus the pyosalpinx flooded the entire abdominal cavity. It is a common complication of this disease so far as I have seen.

Another thing in regard to the prognosis. There are fibroid tumors of the uterus complicated not only by this disease, but complicated by treatment. Of recent years much has been written and said to have been done with electricity in various departments of surgery, especially in the treatment of fibroid tumors of the uterus, and we have expected great things from the application of it to these tumors. It has been applied by electro-puncture; it has been applied by putting one pole to the uterus, and Apostoli has perfected it to a great degree. I believe that the reports we have had from honest, earnest men who do not want to mislead us, men who are reliable, have been misleading, from the fact that if you ask a woman who has a bleeding fibroid to take rest, she will, in the nature of things, improve somewhat. If you discontinue the treatment by rest, if you turn her loose and let her do her work, the symptoms will all return. This has been demonstrated beyond question, if you will read the reports and statistics of those who have given attention to this subject. I think any unprejudiced mind will be impressed with the fact that while the tumors may improve some under treatment, they are not cured. Again, everyone who has seen inside the abdominal cavity of patients with fibroid tumors of the uterus will be convinced that electricity is capable of great complications, that electro-puncture by electricity produces a localized peritonitis which results in firm adhesions, and an operation that might be simple as far as the removal of a fibroid tumor of the uterus is concerned may become a complication by electricity, making it the most difficult surgical operation that it is possible to conceive of.

Another point in regard to the prognosis. There are tumors of this character that I believe are absolutely inoperable. Indeed, the greatest living hysterectomist, Joseph Price, of Philadelphia, whose experience is the largest and whose results are the best, had recently a case which was one of the most difficult I ever saw. I do not know that he has ever failed to remove a fibroid tumor that he has undertaken. In the month of July last he telegraphed me to come to Philadelphia to see and to assist him to operate in a case that had been twice abandoned. The abdomen had been twice opened and twice retired from. The case came from a remote State of the Union to him. I do not think I have ever seen an operation that presented so many difficulties in opening the abdomen. You could see the cicatrix of former operations. The first thing that confronted him was a knuckle of intestine fastened between an immense fibroid and the abdominal wall. In liberating that the intestine was torn, which was not discovered until later in the operation. The tumor was successfully removed. An enterorrhaphy had to be done. The operation was an hour and a half long, the longest one he had ever done in his life. The patient was given morphine, and every effort was made to restore her, but she died on the next day from rapid heart. I believe there are fibroid tumors of the uterus that come into the hands of skilled operators that are absolutely inoperable, and they are the neglected cases. I emphasize the point I made this morning, that time is a more important factor in the operation of hysterectomy than any other operation that we have to deal with. The effects of delay are more important. As Bantock made a plea for early ovariotomy, I think we ought, in justice to our patients, to make the same plea for the removal of fibroid tumors of the uterus. I have seen women in bed who were abandoned, die—women vomiting, undergoing the most painful sensations that one can possibly conceive of by these tumors, who were told by the best practitioners to whom they had access that their tumors were non-malignant, and would go away of themselves at or after the menopause. Just in passing, I will say it is a popular idea of the text-books that these tumors are more common in the African race. I have seen a good deal of this race of people, and I do not believe they are more common than in the Caucasian race.

As to the prognosis of these tumors, I wish to say a few words in regard to the treatment. The pathology I will not go into. You divide them into two classes; they are properly, as Mr. Tait says, myomata. The muscular element predominates, but you have two clinical divisions of the tumors which it is important to observe, namely,

the nodular, multiple fibroid. The hard sometimes disappears after treatment, and the soft, œdematous, mushy fibroid I do not think ever disappears without treatment, or in any other way, except by its removal. As to the treatment of these tumors: Bleeding is urgent sometimes; these patients are almost exsanguinated from prolonged hemorrhage, and every method of treatment by medication that is possible has been resorted to to control that bleeding. It is not easily controlled. It is one of the indications for operative interference. One of the most successful operations I know in pelvic surgery is the removal of the uterine appendages for uterine fibroids. Take a fibroid that is rapidly developing, exsanguinating the patient, producing constant hemorrhage. By opening the abdomen and removing the appendages close up to the cornu of the uterus on both sides, you will arrest the bleeding and cause the tumor to undergo atrophic changes, and make the operation one of the most brilliant in pelvic surgery. It is far safer than electricity. I can refer you to patients on whom I have done this operation as late as five years ago. I have examined the tumor after two years, and found it from as large as a cantaloupe to have gone down to a little nodule of the fundus of the uterus resting behind the pubic bone. It takes away all the active inflammatory changes, and it is in appropriate cases one of the most brilliant operations in the entire range of pelvic surgery.

I allude to the operative treatment by pelvic hysterectomy. We are confronted by a divergence of opinion in regard to hysterectomy that will divide us in twain. I fear the operation of hysterectomy has recently had a great change made in it. It has heretofore been entirely supra-vaginal amputation. Members of this Society, such as Drs. Ross, Reed, Hall, and others, have been doing this operation for complete inclusion of the uterus. I am opposed to this operation. I believe that the other operation gives everything that we desire. This operation of complete inclusion of the uterus leaves an unsutured surface at the bottom of the pelvis; it takes away the keystone of the arch of the pelvis; it weakens the pelvic floor, and causes a long, broad surface there, exposing the parts to changes and septic infection which compromise the patient very much indeed. I want to make one statement in regard to my position, as I know it is going to be assailed. I do not believe surgical operations are to be judged on the basis of mathematical quantities. It will be said of this operation of hysterectomy by supravaginal amputation, that it is faulty, just like the pedicle operation when the clamp was used by Sir Spencer Wells for an ovarian operation, then eliminated and the operation perfected

until ovariotomy has become the successful major operation known to surgery. It is going to be said here that this operation has been evolved in the same way; that the clamp is unsurgical and the pedicle too short for the wound underneath and the peritoneum, and it is going to be perfected by this step that has been made. I do not believe that it is correct reasoning. Anything that saves patients and enables them to be restored to health is perfect enough. It may seem to some of the Fellows that I am a little prejudiced by this fact; that I have done five supravaginal hysterectomies for large tumors, and all the patients are well, active, and useful. I feel very kindly toward that operation. I have seen the other operation done, but have not seen any of the patients recover. I have one other strong point—namely, the operation has yielded the best results in the hands of operators known to you, whose results cannot be questioned. I mean Drs. Price, Bantock, and Tait. These gentlemen have followed the method of supravaginal amputation. That other method of complete inclusion of the uterus may be more ideal, but I deny that it can give as good results.

Dr. J. H. Carstens, of Detroit.—I would like to say a few words on this subject. Dr. McMurtry has so thoroughly covered the ground —and I agree with him in most of the points he has brought out— that there is hardly anything left to be said. I believe also with him that the teaching is bad to say that a fibroid tumor does not amount to anything, that it will disappear. I have operated on several patients where the fibroid tumor did not develop until after the menopause, or if it did, it grew after the menopause much faster than before. I believe these tumors should be removed. There is one other question that I would like to have discussed, namely, the method of treating these tumors and the advocacy of the removal of the uterine appendages for the cure of them. It seems to me a serious question now whether the simple removal of the uterine appendages will accomplish all we expect in a great many cases. We know it does not. We know that these tumors develop after the menopause in many cases, and do not stop after this period. Many cases will continue to grow if we establish the menopause artificially. It depends upon the character of the tumor. I have always assumed that if you have a uterus something like that (illustrating) and a fibroid tumor in the centre of the uterine mass near the menopause, or if the menopause is established artificially, and the uterus undergoes senile atrophy, viz., contraction, there is enough muscular contraction on the side of the tumor to cause strangulation of it and stop its blood supply; in other words,

to cause it to atrophy, to undergo fatty degeneration and become absorbed. If you have a tumor beneath the peritoneum something like that, and if then the menopause is established: there is no muscular fibre outside of the tumor, the uterus does not contract upon the tumor, it does not strangulate it, and it grows just the same. In some cases where I have been tempted to remove the appendages the question has arisen in my mind whether I could accomplish enough; if it is not better, in these cases to remove the uterus in its entirety along with the tubes and ovaries, and thus prevent any further trouble? Multiple fibroids are always a source of irritation, and may be of serious consequence. I am inclined to think that the operation of hysterectomy, such as is now performed with the clamp, is no more dangerous than the simple opening of the abdomen and the removal of the ovaries. Sometimes it is not a simple operation. The operation is no worse, the patient is not undergoing any more danger if you do remove the uterus and the uterine appendages. I think the mortality is as low in one as in the other. If you do that you are positive that all sources of irritation are removed, and that the woman will have no trouble in the future. I would like to have some of the Fellows discuss that part of the question.

As far as the removal of the whole uterus is concerned, it is a grave question whether that is the best way, or the method advocated by Dr. McMurtry. I am inclined to think that Dr. McMurtry's method is the best. You can do it a great deal quicker, the results and statistics are the best. We are very much like others; if we have good results like Dr. McMurtry has had we become cowards, we hate to try anything else, we are afraid to try something new, and so I have hesitated. I have been on the point several times of removing the uterus completely according to the method of Eastman. (Dr. Carstens at this juncture exhibited a clamp of his own design, and pointed out its superior points as compared with other clamps.)

Dr. Edwin Ricketts, of Cincinnati.—I do not desire to go over the ground so ably described by Dr. McMurtry and others, but desire to report three cases. The first patient was fifty-five years of age, who had ceased menstruating at about forty-seven. For four years she had been confined most of the time to her bed on account of uterine hemorrhage. There could be no nodules made out in the diagnosis through the abdominal wall by bimanual examination, but hemorrhage was the thing we had to contend with; in spite of curettement the hemorrhage continued, so that I advised vaginal hysterectomy, and did the operation in the presence of Drs. Reed and Hall. This patient began to bleed after the menopause passed.

Case II.—Four years ago a lady consulted me for some supposed kidney trouble. Upon examination I discovered a fibroid tumor upon the posterior wall of the uterus. The uterus was movable. At this time she was forty-four years of age, and had passed her menopause some three years. She promised to return every thirty or sixty days and let me know as to her condition. There were no symptoms commanding any especial attention, and she went away with this understanding. She did not report to me until near two years after, when I found an enormous mass within the abdominal cavity, and there was no mistake in making out the previous rapid growth of this tumor. I advised an exploratory incision. I saw her a little more than eighteen months after its development, and it has developed to such an extent that it belongs in the class referred to by Dr. McMurtry. It was not prudent to attempt its removal, and the operation ended in an exploratory incision.

Case III.—A lady, sixty-four years of age, who had been under the observation of Dr. Kline, of Portsmouth, Ohio, for sixteen years. Her menstruation ceased some three years prior to the detection of the fibroid tumor. I was consulted as to the advisability of removing it. After examining the patient I said it would be folly to attempt anything of the kind. She died within three months after I saw her I speak of these cases not alone to show that these fibroids do develop after the menopause, but also that this is a thing contrary to the teaching we have had in years gone by.

Dr. Rufus B. Hall, of Cincinnati.—The subject has been discussed so thoroughly that I will confine my remarks principally to operative procedures. I first want to call the attention of the Fellows to the fact that, in speaking of the operation for the removal of fibroid tumors of the uterus, clinical experience teaches that we must classify the operation. We cannot say that every tumor must be removed by supra-vaginal hysterectomy, or that that would be the best procedure, or that every tumor must be removed by total extirpation. We cannot say that in a certain percentage of cases it is not advisable to employ the intra-peritoneal method of treating the stump. This method was spoken of by the essayist this morning, Dr. Miller, and he was criticised by one of the Fellows—I believe, unjustly. I believe there are fibroid tumors of the uterus requiring operation, in which we can give the patient the best chance by the intra-peritoneal treatment. Therefore we should occasionally employ that method. I will illustrate my position by three cases occurring in my own practice, one of which has been reported. I believed before the operation was commenced

that we had a fibroid tumor of the uterus. The tumor was as large as a uterus of nine months' gestation. When the abdomen was opened, the tumor turned out, the uterus was, as near as could be determined, normal in size; the ovaries and tubes, contrary to the rule, appeared perfectly normal. There was a pedicle not wider than an inch and a quarter, and three-quarters of an inch thick. The blood supply of the tumor came from the minuter vessels and adhesions, and there were very small arteries that could be easily ligated in the stump. I threw a rubber ligature around the stump, cut the tumor away, and concluded that that was the ideal stump to put inside. The woman was thirty-three years of age and married. I treated the stump by ligating the vessels separately and covering it with peritoneum; but unfortunately for the patient I used catgut to close in the pedicle, to turn in the peritoneum. I say unfortunate, because she developed sepsis, I think, from the catgut, and came near losing her life. She subsequently recovered, and is now in perfect health. Cases of the kind where we are certain we can control hemorrhage, by ligating vessels separately, where there is very little, if any, muscular tissue in the pedicle, it is good practice *not* to remove the uterus or appendages and treat the pedicle inside. This is the only exception I would make, however, in treating these cases.

Two other cases, one operated on for a mass not larger than the closed hand. She was suffering from peritonitis when she was operated upon, early in the year. In that case the tumor was universally adherent; there was active inflammation going on; the patient had a temperature above 102°. I did not know what I had to deal with when I opened the abdomen. I was prepared to do a hysterectomy if necessary. There was a little pedicle, not larger than one's finger, and the principal blood-supply was from adhesions. We tied that pedicle, and by dissecting out muscular tissue down to the uterus, turning in peritoneum to cover the stump, the patient made a good recovery. I do not believe it is good practice to do a hysterectomy in a case of that kind. Another case, in which I removed a large ovarian cyst, some months ago, had a pedunculated tumor, which was treated like the preceding cases. These are the only cases I have treated in this manner and they have all recovered completely. There are cases in one's operative experience that can be better treated by the intra-peritoneal method than by hysterectomy, and no operator should be wedded to any one method to the exclusion of all others.

Referring to the treatment by the clamp in comparison with total extirpation, I must confess that for the present I am advocating total extirpation. I have done the operation of supra-vaginal hysterectomy

a number of times, using the clamp, perhaps a dozen. I have seen it performed many times. In all the cases in which I have done the operation it has been for large tumors weighing from fifteen to forty pounds—desperate, delayed cases. I think possibly I am somewhat to blame for that myself, from the fact that it is an operation I detest, and I never permit myself to consent to make the operation as long as the patient can live without it, and for this reason I have had only very bad cases for operation. I therefore cannot fight general practitioners very hard for standing off this operation. My statistics are not satisfactory, because I have only operated on cases necessarily bad. I am not satisfied with my own results with the use of the clamp, therefore I have been looking for something better. Total extirpation was proposed and approved by a number of men. The first operation I made in this manner was done early in the year in the case of a large tumor weighing twenty-two pounds. It was large enough to fill an ordinary coal scuttle, with universal adhesions to the omentum, abdominal wall, and intestine. The operation was made in the hospital, and Dr. Reed was present. The opinion of all present was that we had never seen any abdominal operation that appeared so desperate as did this one. The tumor was so large that it could not be turned out until the adhesions were separated. The adhesions were so firm under the liver and posterior part of the tumor that I had to separate them with the hand without seeing what I was doing. Blood was running over the abdomen on to the table. The tumor was divided in the middle something like a dumb-bell. As soon as the tumor was turned out a clamp was thrown across the base and the hemorrhage was controlled. The lower portion of the tumor weighed about half of the weight of the tumor. There were universal adhesions in the pelvis, and everything was attached to the tumor except in front of it. Before I commenced the operation I decided that I would make it in this manner, no difference what took place. I would take the entire cervix out if the patient did not survive the operation. The operation was more than an hour long. I had never seen the operation done. I felt timid about it. After cutting a large portion of the tumor away, getting the clamp on the lower part, I could easily manage it, and had the hemorrhage under control at once. The cervix was dissected out, the ligatures left alone, and the vagina was packed with a little bit of gauze, and no attempt made to stitch the edges of the peritoneal wound together. Patient recovered and is now in perfect health.

In the second case I operated upon, the tumor weighed about fifteen pounds. The patient recovered without any difficulty; her tempera-

ture was 99.4° and that for only one registration. I think the patient took but one dose of morphine. She was fifty-two years of age. The tumor was very small and soft until the preceding two or three years, since which time it had grown to fifteen pounds in weight. The patient was exceedingly fleshy, short, and weighed nearly two hundred pounds. The fat on her abdomen at the lower end of the incision was at least three inches thick.

A third case operated on a short time ago gave a history of peritonitis existing two weeks. It was supposed by her family physician that she had an ovarian cyst, an operation was urged and the family consented. I saw her in the afternoon, when she had a temperature of 103°, pulse 128; she was a frail woman, thirty-seven years of age, The tumor filled the entire abdomen. At the upper right hand portion there was exceedingly great pain under the liver, and she would not let me touch her over that region without making great complaint about it. She located her pain at that point before the fever commenced. She had sweats, sepsis, and I thought a fibroid tumor of the uterus. I advised an operation, which was made early the following Sunday morning. The tumor in this case was like the last one, situated in the uterus itself, and the fundus of the organ was the top of the tumor; there was a little outgrowth the size of the closed hand, which was the cause of her septic peritonitis, it had a narrow pedicle attaching it to the main tumor, and had become strangulated by being twisted upon itself in some manner. This small tumor was the color of liver tissue, with extreme adhesions to it, and a pint or so of fluid was emptied out of her abdomen when it was opened. I removed the tumor and uterus entire, as I did the other two cases. In each one of these cases I tried to improve on the technique. (Here Dr. Hall illustrated his technique on the blackboard.) I tied the uterine artery on both sides and cut away the cervix. I had three ligatures on either side about ten inches long. I took the two peritoneal edges, which were contracted very much at the time, and turned the edges of the peritoneum together in this manner, one peritoneal surface to the other, and ran catgut sutures along so as to coaptate them nicely. The whole operation occupied less than thirty minutes' time. I have had an ovariotomy with dense adhesions, which I consider very much more difficult than I do this operation, with the patient in the Trendelenburg posture. The quantity of blood lost is not to be considered; there is no more blood than there is by using the clamp. You have the blood entirely under your control and the peritoneum is closed off from the vagina. The only raw surface is in the vagina, which I pack lightly with gauze. I remove that in twenty-four hours; irrigate the

vagina every four or five hours; catheter used for forty-eight hours, then patient permitted to relieve herself, and the douche is used afterward. The temperature of this patient was never below 102° or 104° before operation. But after it but once did it reach 99.4°, and it was taken every two hours for the first week, yet the patient had septic peritonitis at the time of operation. The abdomen was drained. I have seen Bantock, Tait, Thornton, Martin, Schroeder, and Keith, and all of the noted men abroad at work doing this operation with the clamp. I have done a number of these operations myself, and I do not believe that I am a novice in the work. I have seen delayed desperate cases operated on by these men with about the same results as that attained in my own cases. I was not satisfied with their results with the clamp, nor was I satisfied with my own results. I have never seen Price operate. I do not know that he does it differently. Take the class of cases I have named, I would not be surprised but what he would be satisfied with the results I have obtained. If we take the class of tumors mentioned, of the broad ligaments, upon the tumor, these are the worst kind of cases in which to use the clamp. I do not say that total extirpation is the easiest of operations, but where you close up the peritoneal cavity entirely from the possibility of sepsis, leaving only a raw surface in the vagina, the patient is in no more danger than she would be with so much raw surface upon the arm. I do not see how it can be considered such a desperate operation. The objections to the clamp are too well known for me to mention them. As to the removal of the keystone of the arch in this operation, I do not believe that it is good argument. I do not believe it is correct; I do not believe that it does it. Why? We have a raw surface in this particular operation where we have dissected the bladder off from the anterior wall of the tumor and the rectum from the posterior part of it, with the adhesions formed where the broad ligaments were tied off, which makes a good, strong, broad, firm cicatrix, possibly not as good as Nature put there, but I think it will answer all practical purposes. Until I have a few deaths in operating in this way I am going to continue. Three successful operations do not count much, but they are enough to encourage me to continue.

Dr. A. H. Cordier, of Kansas City.—Dr. McMurtry and the other gentlemen who have preceded me have discussed this important subject in an able manner and have left very little to be said on the pathology of fibroids and myomas. I do not think Mr. Tait's statement should go unchallenged, when he says that "the terms fibroid, fibrous, and fibroma, should be banished from pathological nomencla-

ture and that the name of myoma be substituted." Mr. Tait bases this opinion of the incorrect names applied to uterine tumors on his experience, that the fibrous tissue entering into the make-up of these growths is of little consequence, and that in all cases the uterine muscular fibre with its rod-shaped muscles will be found to predominate; hence the term myoma is applied by Mr. Tait to all tumors classified by other authors as uterine fibroids and myomas.

Many of the recurring fibroids are in reality sarcomas. I believe we have a true fibroid as well as a myoma, basing the name on the predominating tissues entering into the make-up of the growths. These growths have different clinical as well as pathological histories. I have removed an œdematous myoma from a girl eighteen years old and in one case from an aged woman long after the menopause. Myomas do not so often give rise to the hemorrhages, the dominant symptoms in the hard tumors. Myomas continue to grow after the menopause, and are liable to undergo mucoid or colloid degeneration (fibro-cyst), or even, as in one of Mr. Tait's cases, become malignant (sarcomatous). In regard to the dragging of the pedicle, there seems to be a difference of opinion. This operation, I am sure, is not thoroughly understood and not performed properly by many. The Kœberlé with the wire placed around the base of the pedicle at this point (illustrating on the blackboard), with the peritoneal cavity entirely shut off by stitching the visceral to the parietal peritoneum below the wire, guards against sepsis. The pins are placed at this point (illustrating) through the pedicle on a level with the abdominal walls, and the amount of dragging can thus be regulated. This "dragging" objection to the supra-vaginal operation is a small one, and should have no influence in dictating to the operator the choice of procedure. Many operators do not take proper steps to form a neat, small pedicle. This is easily done. Dr. Reed speaks of suppuration about the stump. We do not have suppuration in this operation if the treatment is properly carried out.

Dr. Reed.—I never saw one that was perfectly treated.

Dr. Cordier (resuming).—Your work must be done with clean hands and dressed with clean dressings, and last, but not least, every aseptic detail should be observed in re-dressing the stump, if it is necessary to re-dress it at all. You can keep the pedicle dry after the first twenty-four hours. I have had the first dressing remain on for ten days, and on removal found the stump as dry as an umbilical cord a week old. If the wound is poisoned it is somebody's fault, and not a defect in the principles governing the operation. You never have

suppuration without the presence of dirt or bacteria. It is true you have a granulating surface, but this quickly heals aseptically. All our notions of doing ideal surgery at a sacrifice of human life should be laid aside, and our work so directed as to obtain the best results with the lowest mortality. In this operation you reduce the *time* in performing it as compared to other methods; you reduce the dangers of sepsis, and you have entire control of the hemorrhage: three of the greatest dangers in all abdominal operations are under the control of the surgeon.

The important question of diagnosis should be given due consideration before resorting to operative procedure in obscure cases. The history of an œdematous myoma occurring about the menopause is often one of pregnancy. The absence of the menses (these tumors growing without hemorrhage), no pain, and a rapid development of the neoplasm, are very suggestive of the tumor being a pregnant uterus. Mr. Tait has said: "With one hand in the abdomen and a finger of the other in the vagina, I have on one occasion been unable to tell whether I had to deal with a pregnant uterus or a myoma." He closed the abdomen, to reopen it at a later period to remove an œdematous myoma. If in doubt wait until the normal duration of pregnancy has gone by.

Dr. W. H. Myers, of Fort Wayne.—I indorse the opinion expressed by the last gentleman. I witnessed many of the operations of Keith, in Edinburgh, and he never discovered the least trace of pus after the use of the serre-nœud. How long does it take the peritoneum to unite after an operation? Perhaps four hours by excluding all sepsis from that quarter.

Dr. Rufus B. Hall, of Cincinnati.—That is the point we make in total extirpation. We close off the pelvic cavity perfectly by a stitch. There is no possibility of sepsis, adhesion of intestines, knuckles of intestines, etc. That is one reason why the operation is more certain to exclude sepsis than the pedicle, even if you shut off the peritoneal cavity with the raw surface, that your patient might not get sepsis.

Dr. J. H. McIntyre, of St. Louis (by invitation).—I thank you for the kind invitation extended to me to participate in this discussion. The question is of absorbing interest, but has been so thoroughly discussed that I feel I shall not be pardoned if I inflict an extensive disquisition upon you, even though it be a subject so pregnant with interest. I regard hysterectomy in the light of my own experience as being *not* one of the easiest operations in surgery. Generally, when I approach a case where I do not know before I get into the abdomen

whether I will be compelled—not as a matter of choice, but of necessity—to do a hysterectomy, I feel that I am in the presence of something that is calculated to set a man down upon his mettle. I feel that I cannot indorse the position taken by my distinguished friend, Dr. Hall, in that regard. The Doctor has been exceedingly fortunate in striking cases which were easily managed. If he goes on I fancy he will yet find something that will bring him up with a sharp turn and cause a decided change of opinion in this matter.

A good deal has been said as to the nature of these growths and what you may expect from oöphorectomy and from hysterectomy. If I understand the nature of these growths, we can well indorse the nomenclature of Lawson Tait, wherein he divides them into the multinodular (hard) in contradistinction to the soft, œdematous myomas; the one variety often growing after, and the other before, the menopause; the one influenced by the menopause, the other not. If you remove the ovaries and Fallopian tubes, with the expectation of stopping the growth in the soft œdematous myoma you will find you will be doomed to disappointment. My experience in this regard is borne out in practice. I can detail case after case wherein the multiple, hard variety of myoma, followed by removal of the ovaries and tubes, is attended with most brilliant results. I have a case now in my own hospital, which was operated upon two weeks ago yesterday for bleeding multiple fibroids, where the woman is now able to eat beefsteaks. She had been subjected to various kinds of treatment, Heaven only knows what, and with no advantage. Of course, a surgeon will not go into these operations recklessly and blindly. The more of this class of work I do the more I am convinced that "fools rush in where angels fear to tread." In a case where a prudent gentleman will advise an operation, I believe that with proper care, persistence, skill, and pluck it can be completed. Incomplete operations are the opprobrium of surgery, and especially of abdominal work. This is not a bald statement; I believe it, and feel that it is true.

Dr. Miller (closing the discussion).—As the discussion has drifted from the real purpose of the paper, I will not champion either method of operation. I simply desire to correct one or two statements that have been made in reference to the paper that was read. Dr. McMurtry failed to apprehend me correctly when he criticised my method of treatment instead of doing total hysterectomy. In the first case we had quite a large, short pedicle, which was attached to the growth. As I stated in my paper, it was about to become enucleated; it was receiving its nutriment from the circulation established through

the omentum. It was not difficult to put a clamp about the pedicle. It had its connection with the fundus through the cellular tissue of the capsule of the fibroid, which was all that remained. We had no hemorrhage resulting. The other tumor was attached to the broad ligament; it had a small, elongated pedicle, which was simply ligated, and the circulation was established through the reflected Fallopian tube on the opposite side, furnishing it with the proper nutriment. I thank the Fellows for their kind consideration of my paper.

A CLINICAL REPORT OF GALL-BLADDER OPERATIONS.

By RUFUS B. HALL, M.D.,
CINCINNATI.

THE following seven cases comprise all of the gall-bladder operations I have made, and are reported in the order of their occurrence. I put the cases on record as so much clinical material, to guide us in our future work in this comparatively new operation. I have gained many valuable points in the management of these cases, and hope they will not be uninteresting to the Association.

CASE I.—Mrs. B., aged thirty-nine years, Cincinnati, Ohio. Patient of Dr. Stevens; operation was made April 13, 1890, and reported in full in the *Times-Register*, of Philadelphia, July 5, 1890, hence I will give but a short abstract of the case here. At the time of the operation the patient had been suffering from complete obstruction of the common duct for more than three weeks, and the cholemia was profound. She was in a dazed condition, listless, and did not appear to notice anything or anyone about her. Pulse 100, temperature 97½°. The liver was enlarged; the lower border was easily defined about four inches below the ribs. She vomited a little glairy mucus every few minutes. The patient appeared to be in a dying condition. Any operative interference seemed to promise nothing but a fatal termination, yet there might be a bare hope, and the friends decided to have the operation made. Upon opening the peritoneal cavity, firm adhesions were encountered with omentum, intestine, and gall-bladder. After these were separated I could detect several stones in the enlarged gall-bladder. This was aspirated and incised, and four gall-stones which were lying loose in the gall-bladder removed; a fifth stone was found impacted in the common duct and removed. The stones here presented are those removed. The sinus was closed on the twenty-first day. She complained of nausea but little after the third day, and vomited but

twice after the operation was made. On the third day she retained liquid food, and on the fifth she had a ravenous appetite. On the twenty-eighth day she was able to superintend her household.

Case II.—Mrs. F., aged fifty-two years; was seen by me with her physician, Dr. Dorr, at her home near Lower Salem, Ohio, February 16, 1891. For seven or eight years she had suffered from some obscure disease in the region of the liver. That organ was very markedly enlarged during the acute and severe attacks of pain from which she had suffered at irregular intervals for the past four or five years. The enlargement gradually subsided after the acute attacks were over, yet never entirely disappeared for at least a year before the operation was made. She was under the professional care of several of the best-known physicians in her locality for months before the operation, yet she received little, if any, benefit other than palliative. Up to five or six weeks before my visit she had never been jaundiced, more than a slight discoloration of the conjunctivæ occasionally after the more severe attacks of pain. About five weeks before my visit, after suffering from a severe attack of pain of several days' duration, she gradually developed jaundice, which grew more pronounced from day to day until, at the end of ten days, it was profound, which condition remained at the time of my visit. She was markedly emaciated, and examination revealed the fact that the liver was enlarged to a point about three inches below the ribs, and in the region of the gall-bladder could be detected a distinct pear-shaped enlargement the size of a pint cup, which I believe was the enlarged gall-bladder. My diagnosis was gall-stones with obstruction of the common duct, and I advised an operation, which, however, was not accepted until two weeks afterward, at which time the patient was in a very bad condition for an operation, with a pulse of 112, temperature 98°, and vomiting a little mucus every few minutes. She had been unable to retain the blandest food in the stomach for the past ten days. March 2d she entered my private hospital to have the operation made, which was done on the 7th. Present: Dr. Van Meter and two Fellows of this Association, Drs. Ricketts and Reed.

After the abdomen was opened the gall-bladder was found to be enlarged and containing a number of gall-stones. After removing twenty ounces of bile with the aspirator the gall-bladder was incised, and three large stones and several small ones removed without difficulty, when I sought for the obstruction in the common duct, and found a stone larger than the end of the finger, firmly impacted. I also discovered for the first time a *new-growth*, larger than a walnut, which involved the duct. After the stone was removed I was unable to pass a probe through the duct into the intestine, owing to

the obstruction from the new-growth, which proved to be malignant disease of the head of the pancreas. The operation was made in the usual manner by stitching the opening in the gall-bladder to the abdominal wall and draining it. The wound united perfectly.

She had no inflammatory trouble following the operation. The highest temperature was 100°. She gradually failed in strength and died from exhaustion on the sixth day after the operation.

The unfortunate termination of this case is one that must occur if the operation for gall-stones is deferred until after a new-growth develops. There is no doubt in my mind but that the long-continued irritation from the presence of gall-stones in the gall-bladder, and the consequent repeated attacks of hepatitis which so frequently occur, favor the development of malignant disease in or about the gall-ducts. I am aware of the fact that this statement will be challenged. But if we recall the fact that a patient suffering from gall-stones usually gives a history of some obscure hepatic difficulty for years, which gradually grows worse until the operation for their removal; or, the patient dying, an autopsy reveals the fact that not only were there gall-stones, but also malignant disease in or about the ducts; and again recall the fact that patients may and usually do live for years after they have developed gall-stones, provided the common duct is not obstructed, while, on the other hand, patients die within a few weeks after the development of malignant disease: with these facts before us, it is not a difficult matter to associate cause and effect in the two maladies.

If we find it to be a fact that patients suffering from the presence of gall-stones are predisposed to malignant disease, it will be a very forcible argument in favor of an early operation for their removal. It is only necessary for us to trace the cases dying from obscure hepatic diseases, and verify it with an autopsy, to be convinced of the frequency of the coexistence of gall-stones and malignant disease about the gall-ducts. Granting the correctness of this assertion, would it not be advisable to make an exploratory incision in all those chronic cases suffering from obscure hepatic difficulties where health is destroyed and life endangered, where a correct diagnosis is otherwise impossible? I, for one, am convinced that this is the correct doctrine. My third case will illustrate this and justify the procedure.

Case III.—Miss S., aged thirty-three years, Lewistown, Pa.; was seen in consultation at her home with her physician, Dr. Harshberger, September 20, 1891. She gave a history of having suffered severe pain in the hepatic region, about nine years ago, which was believed by her medical attendant to be hepatic colic. During the following four or five years she had a number of similar attacks of pain, each one confining her to the bed for a week or more. About five years ago she had another attack, but much more severe, which continued for about five weeks; during this attack she required large doses of morphine several times daily to make her existence tolerable. From this time on she was confined to her room, and a greater part of the time to her bed. If she would attempt to walk about the room the pain would at once return, and it was only a few weeks later that the exertion required to get out of bed would immediately cause a terrific attack of pain in the hepatic region. For this reason only, she chose to keep her bed. After she adopted this plan she had the attacks of pain at intervals of from three to six weeks, these lasting from six to twenty hours, always requiring large doses of morphine for relief.

At the time of my visit the patient was emaciated; estimated weight, 75 pounds, while her former weight had been 126 pounds. She was afraid to turn herself in bed for fear of bringing on an attack of pain. The skin was clear and there was no enlargement over the region of the liver or gall-bladder. There was slight tenderness over the locality of the gall-bladder on very deep pressure. The patient was a martyr to the pain, and was so anxious to do anything which promised relief that, believing we would find gall-stones to be the cause of her trouble, I advised an exploration, which was done October 19th. Upon opening the abdomen we found the gall-bladder very much contracted. The walls were fully half an inch in thickness, and the cavity would not have held half an ounce, but was packed full of gall-stones, ninety-one in number. One large stone was impacted in the cystic duct, and apparently the duct was closed, from inflammatory changes, upon both sides of this stone. It was with great difficulty that this could be removed, after making a communication with the gall-bladder by means of a sharp pair of pointed scissors, using them much the same as we would an auger in boring a hole, until we got down to the stone, when we succeeded in breaking it up and removing it in pieces. The patient made a good recovery, and is now free from pain and enjoying most excellent health. As you see, the stones are small and sharp-cornered. The result in this case illustrates the wisdom of exploration in these doubtful cases.

Case IV.—Mrs. F.. aged fifty years, Cincinnati, Ohio; has been a

sufferer for about one year from some obscure hepatic difficulty, during which time she has had several severe attacks of pain of two to three weeks' duration, accompanied with an enlargement in the region of the gall-bladder, and slight jaundice. When I first saw the case with her physician, Dr. Berchard, she had been ill for ten days. The liver was enlarged and there was a distinct enlargement over the gall-bladder, with well-marked jaundice. She vomited a little mucus every few minutes, and the pain was so severe that she required morphine several times daily. From the fact that she had been ill for more than a year, was unable to secure relief from the best medical treatment, and had every indication of obstruction of the common duct, I advised an operation, which was at once accepted. The operation was made March 5, 1892; the gall-bladder was very largely distended, but no stones could be detected. After vain efforts to empty the gall-bladder by well-directed pressure, it was learned that there was some inflammatory obstruction about the common duct. The gall-bladder was aspirated and emptied. After incising it an effort was made to pass a probe through the duct into the intestine, but it could not be accomplished. The operation was completed in the ordinary way and the gall-bladder washed with warm water twice daily. On the sixth day a large plug of inspissated bile was washed out, which was believed to come from the common duct; after that time much less bile came from the gall-bladder. She made a rapid recovery; is now enjoying good health; yet she has a fistulous opening which discharges a very small quantity of bile, but this does not appear to interfere with her general health. The stools are of the natural color, and she has regained her usual weight and strength.

Case V.—Mrs. R., aged thirty-nine years, Covington, Ohio; had been subject to sudden and severe attacks of pain in the hepatic region for seven or eight years, and a number of times had a distinct enlargement in the region of the gall-bladder during and after attacks of pain. Nine weeks before my first visit, June 11, 1892, after a severe attack of several days' duration she became jaundiced, which remained until the time of my visit, when the cholemia was extreme. The patient was in a dazed condition and did not notice anyone about her unless spoken to. Pulse 128, temperature 98°. The liver was enlarged, and the lower border was easily defined about three inches below the ribs. A distinct enlargement could be made out to the right of the liver, which was supposed to be the gall-bladder. She vomited a little mucus every little while. Diagnosis: obstruction of the common duct. An operation was advised and was made at the patient's home, June 15, 1892,

with the assistance of Drs. Harrison, Schofield, Tempelton, of Covington, and Frame, of Piqua, Ohio.

When the abdomen was opened, the gall-bladder was found to be largely distended, containing a number of gall-stones. It was aspirated, incised, and 75 gall-stones varying, in size from that of a pea to a cherry, were removed. The cause of the obstruction was found to be a stone in the common duct, which could not be removed through the gall-bladder, owing to some inflammatory exudation, nor could it be pressed on into the intestine. It was plainly evident that to leave the stone would leave the common duct obstructed for all time, and consequently a fistulous opening if the patient recovered; therefore, I removed it by incising the common duct. Before this could be done, however, I was obliged to enlarge the abdominal incision, which I did by extending it upward and to the left along the border of the ribs to a point a little past the median line, making a kind of a flap of the abdominal wall. With this turned back we had ample room for work, and the duct was incised and the stone removed. I here present the stones. I at once closed the opening in the duct with catgut suture, and packed a strip of gauze under and around the duct, bringing the end out at the upper angle of the wound, where three stitches were left untied. The gall-bladder was stitched to the abdominal wound in the usual manner and drained. She remained in the same dazed condition as before the operation, with no indication of improvement. She had no rise of temperature, and died from exhaustion June 17th, fifty-three hours after the operation.

I do not think the incision into the common duct made her changes any less for recovery, as there was no leakage from it. But the fatal error was that the operation was deferred until the patient was in a dying condition. Here, again, we see the necessity of an exploratory incision in these obscure hepatic difficulties. This patient had been a subject of gall-stones for eight years, and if she had been operated upon before the common duct was obstructed, while she was yet in a good physical condition, before the profound cholemia of her last illness, I have but little doubt that she would have recovered. In the light of my present experience I would hesitate to operate upon any patient who had suffered from complete obstruction of the common duct for so long a period of time. The powers of recuperation are so feeble that we can hardly hope for other than a fatal termination.

Case VI.—Miss H., aged twenty-four years; sick for twenty months with indigestion and pain in the region of the stomach and liver. Three weeks before my first visit she went to bed with some form of continued fever, which her physician, Dr. Juettner, of this city, could not define. She grew gradually worse, with a fluctuating temperature and pulse. On the day preceding my visit her physician discovered a swelling in the region of the gall-bladder which was exceedingly sensitive to pressure. On June 18, 1892, I saw the case with her physician. She had a pulse of 120, temperature 103°. The liver was enlarged, and there was a distinct swelling in the region of the gall-bladder, but no jaundice. I had no hesitation in pronouncing the swelling the distended gall-bladder, probably with suppuration, and advised an operation at once. The patient was sent to the Presbyterian Hospital, where I made the operation the following morning, when I removed sixteen ounces of pus and these thirteen gall-stones from the gall-bladder which I here present to you. The largest one was firmly impacted in the cystic duct. The patient recovered without incident and went home twenty-six days after the operation.

Case VII.—Mrs. B., aged forty-two years, Bainbridge, Ohio; referred to me by her physician, Dr. McKee, July 12, 1892, with the following history: Twenty years ago she had a severe attack of pain in the region of the liver, which continued for forty-eight hours; this was repeated on two subsequent occasions at intervals of about one year each. After that time she had only a slight uneasy sensation in the right side and stomach, until fourteen years ago, when she suffered from the fourth severe attack of pain, which continued for several days. After this attack she was rarely free from pain for one week at a time, yet she had only a few very severe attacks until five years ago. But for the past five years she has been under the care of her physician most of the time. For more than one year before she came to me there had been a distinct enlargement to the right of the enlarged liver. She suffered terrific attacks of pain brought on by the least exertion. I had no hesitation in pronouncing the case one of gall-stones, and advised an operation, which was done at my private hospital July 15th, and three stones as large as the first joint of a man's thumb, as you see, and 135 stones varying in size from a grain of wheat to a bean, which I present to you, were removed. The patient developed a severe hepatitis after the operation, and on the four and fifth days was alarmingly ill, but after that she made an easy and complete recovery.

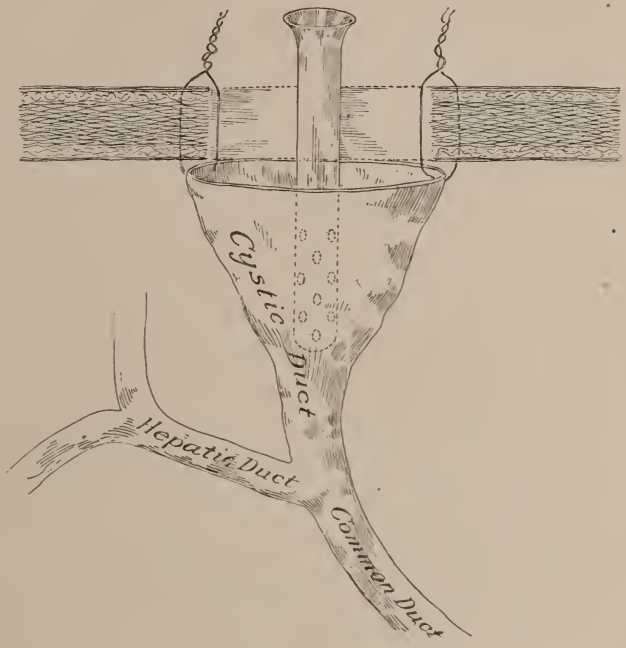
The cases reported are duplicates of hundreds of patients suffering from obscure pain in the hepatic region. It will only be neces-

sary to demonstrate to the profession at large the importance of operation upon these chronic cases before the common duct is obstructed, to gain their co-operation, and thus save years of untold suffering and many valuable lives which would otherwise be lost. If all the cases operated upon where the common duct was obstructed could be tabulated, the mortality would probably be very great. On the other hand, in the operation for gall-stones where the common duct is not obstructed, the mortality is not more than two or three per cent. in the hands of men prepared to do this work. These facts alone, if no others could be advanced, should be sufficient to warrant early operation; yet if the theory be correct that the long-continued irritation of pent-up gall-stones acts as an exciting or predisposing cause of malignant disease in or about the gall-ducts, this is the greatest reason of all for advising exploration in all doubtful and obscure cases of chronic hepatic difficulties, and early exploration in all cases of distended gall-bladder.

DISCUSSION.

Dr. Edwin Ricketts, of Cincinnati.—Mr. President: I think that we have evidence coming forward now to bear out the claims of the relationship of gall-stones to cancer of the liver. I have recently opened the abdomen the thirteenth time for obstruction of the gall-duct. There is one procedure resorted to by Dr. Hall that I desire to criticise, namely, incising the common duct for the removal of calculi that are with difficulty dislodged. This, in my opinion, is a serious mistake. Instead of such a procedure, I think that if a short glass drainage-tube not large in circumference is introduced into the common duct after the gall-bladder is stitched to the peritoneum, and the common duct is washed through the drainage-tube by means of warm water with a syringe, it will dislodge the stone from the common duct. I have seen some of these obstructions relieved in this way. Like the operation of cholecystotomy, I do not think it is an operation of election. One word more and I am done in regard to this subject. I desire to refer to the manner of stitching the gall-bladder up to the peritoneum. We may let this represent the abdominal incision (illustrating), and say that these are the angles of the wound. This represents the gall-bladder, next the peritoneum, next the muscles, and next

the skin. My procedure is this: I pass a needle armed with thread down through the wound proper, and start in this direction, so that I have a stitch in the angle of the wound in this way. The tying of this



brings the gall-bladder up against the peritoneum. The lateral stitches are put in in this way. In omitting the angle stitches and using only the lateral, a puckering, so to speak, is left in the line of coaptation.

Dr. W. H. Myers, of Fort Wayne.—I desire to say a word or two on this subject, as I have had a little experience in this class of cases. I believe the correct treatment in obstruction of the cystic duct is to remove the gall-bladder. It becomes useless, and is merely a receptacle. No bile remains in it, because no bile passes into it from the common duct. I had a lady under my observation some months ago upon whom I operated. I removed six gall-stones. There was obstruction of the cystic duct, and there was obstruction also beyond that point. The cystic duct was obliterated. In that case the fistula did not close up, but the mucous discharge continued afterward and she left me very much displeased with the discoloration she was sub-

ject to by means of the fistula remaining open. I could in that case easily have removed the gall-bladder. There is no reason why I should not have done that operation.

Another point in connection with this subject is, that where there is obstruction of the cystic duct we have no jaundice. It is well to bear that fact in mind. In cases of obstruction of the cystic duct the gall-bladder is of no use, and I see no reason why it should not be removed. The essayist says that in his cases he found large gall-stones, and only one or two existed at a time. I had a case since then where a number of gall-stones were passed by the patient. At my first visit I said she had gall-stones. She complained of colicky pains or what we sometimes call cramps. I insisted upon an operation. Suppuration occurred. I laid open the gall-bladder and 200 stones escaped.

I think the paper is a valuable one. We are beginning to direct our attention to an important surgical field which will occupy more of our attention in the future, and it will save many discomforts and pains by an early operation.

Dr. Hall (closing the discussion).—I want to thank the gentlemen for their kind remarks, and refer to one case that I have in mind, of a gentleman who has passed more than 300 gall-stones in the past year. He still suffers. The gall-stones are nearly all the same size, varying from the size of a split-pea to a pea. He suffers terrific attacks of pain every two or three weeks. I, perhaps, cannot do better to emphasize the point I want to make than to show you a few specimens removed post-mortem. I want to say that the histories from the gentlemen connected with these cases are forthcoming when necessary. I went to great annoyance and trouble and some expense to have these specimens, with the individual histories of the cases, to back up my pet scheme, namely, the constant, long irritation of gall-stones as a possible cause of malignant disease in or about the gall-duct.

Case I.—The first case is one which occurred in my own practice a number of years ago, when I was a general practitioner at Chillicothe, Ohio. I wanted to operate, but a prominent surgeon in the city ruled me out and said it was cancer. The patient died two months later. Autopsy showed three large gall-stones, as you see, but no cancer.

Case II. is one of Dr. Wright's, of Troy, Ohio. Patient passed thirteen or fourteen gall-stones, here presented, two years before her death; suffered constantly with pain in and about the liver, and because the Doctor could not cure her she changed attendants, and, after an illness of a few weeks, died on the 11th of July, 1890, with every indication of obstruction of the common duct; but no autopsy could

be secured, and we have no means of telling whether death occurred from cancer or from gall-stones. It is reasonable to say it was from gall-stones, but possibly she had cancer as well.

Case III.—This is a case of a friend of mine in Cincinnati. The patient was sick for ten years with obscure hepatic difficulty. She had every indication of obstruction, and died after thirteen weeks' illness. She had cancer in the head of the pancreas and gall-duct. A large stone was found in the common duct and eighty gall-stones in the gall-bladder. You see a most beautiful collection, varying in size from the end of the thumb to that of a pea.

Case IV.—Young man, of Springfield, Ohio, patient of my brother who is practicing there. He had supposed neuralgia of the stomach for eighteen months before death. He was partially relieved with morphine and other medication. He was a robust hearty-looking young man, but died suddenly from a gunshot wound. Autopsy revealed two large gall-stones in the gall-bladder, well polished off, as you see by examining the specimens.

Case V.—This case had obscure hepatic difficulty for four years, and died in 1891 after ten weeks' sickness. Autopsy revealed cancer of the pancreas and gall-duct, and these seven large gall-stones in the gall-bladder.

Case VI.—Patient sick for a long time. Autopsy showed cancer of the pancreas and these forty-six gall-stones in the gall-bladder.

Case VII.—A gentleman living at Springfield, Ohio, painter by trade, had symptoms of gall-stones for seven or eight years. My brother and myself urged operation. The case went out of the hands of my brother, on that account.

In October, 1890, I was asked to see the autopsy upon this patient while attending a meeting of the Southwestern Ohio Medical Association, at Springfield, O. The patient had been confined to his bed for several weeks with an enormously large liver, and jaundice was profound. The doctor said he had cancer of the liver. I said before the autopsy that I firmly believed the man had gall-stones. He had two gall-stones in the gall-bladder, and one as large as the largest one presented here to-day in the common duct, and cancer at the head of the pancreas. The history of these cases demonstrates conclusively that the gall-stones preceded the malignant disease. Again they show us that gall-stones are treated for cancer, and patients permitted to die unrelieved when no cancer existed. A pretty strong argument in favor of early exploration and operation in these chronic cases.

IS EVOLUTION TRYING TO DO AWAY WITH THE CLITORIS?

By ROBERT T. MORRIS, M.D.,
NEW YORK.

About eighty per cent. of all Aryan American women have adhesions which bind together the glans of the clitoris and its prepuce, in part or wholly, and which cause little or much disturbance. This condition very evidently represents a degenerative process that goes with higher civilization. It dates back to the embryonic life of the individual, and consists, anatomically, in a failure of the genital eminence to develop its epithelial surfaces perfectly enough for complete cleavage between the opposed surfaces of the prepuce and the glans of the clitoris.

Up to the present time we have recognized four well-marked evidences of degeneration that are characteristic of the highly civilized varieties of *homo sapiens*—namely, early falling hair, decaying teeth, weak mammary glands and badly balanced eye-muscles. To this group we may add a fifth characteristic—the imprisonment of the glans clitoridis.

Preputial adhesions in women are similar in character to those which occur less frequently in men, and the resulting disturbances are alike in both sexes, but greater in degree in women because of the more impressionable nervous system of the gentle sex.

Adhesions may bind down the prepuce so closely that not a particle of the glans clitoridis is in sight. They may involve half of the glans, or they may form only a small band which amounts simply to an anatomical curiosity. The curiosity is serious in portent, however, for Nature, in failing persistently to develop the part, shows that it is intended to do away with the clitoris as civilization advances.

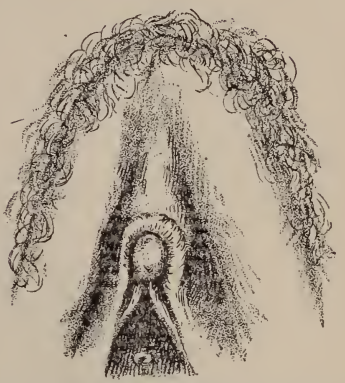
We may naturally infer that as the clitoris degenerates sexual desire lessens, and we have then more of the independent type of

women who are instinctively opposed to becoming "breeders." The question would lead to a very pleasing thought to the effect

Fig. 1.

Miss A. Prepuce firmly adherent to glans, allowing only the tip of the glans to protrude, and imprisoning small, hard particles of smegma.[1]

Fig. 2.



Miss A. Prepuce stripped from glans.

Fig. 3.

Miss B. A deceptive case. Glans apparently free on casual inspection, but its base tightly adherent with prepuce, and inspissated smegma retained. Prepuce drawn up as far as possible.

Fig. 4.

Miss B. Adhesions separated and prepuce drawn up.

that selective breeding is to be done more and more, the selections guided by the intellectual rather than the emotional set of faculties.

[1] Photomicrographs by Dr. J. C. Smith, Laboratory of the New York Post Graduate Medical School.

Unfortunately, however, the adherent prepuce produces such an impression upon the nerve centres that degeneration of the whole sexual apparatus of the woman may follow, and we then begin to see the limitations to the development of our race. We know already that the proportion of white women with normal sexual organs is small.

The glans clitoridis squeezed by adhesions fails to develop and remains small and compressed. The glands of the mucous membrane of the prepuce also fail to develop at points of adhesion. It

Fig. 5.

Mrs. C. Section through glans clitoridis and prepuce, showing normal mucous membrane of each.

is a remarkable fact, however, that when adhesions have been separated and the prepuce prevented from re adhering to the glans of the clitoris, the glans will in a few weeks develop to what is apparently a normal size. The glands of the mucous membrane at the same time become perfect and furnish abundant normal secretion; and these restorative changes take place even after years of repression. I know of nothing analogous among the higher vertebrata.

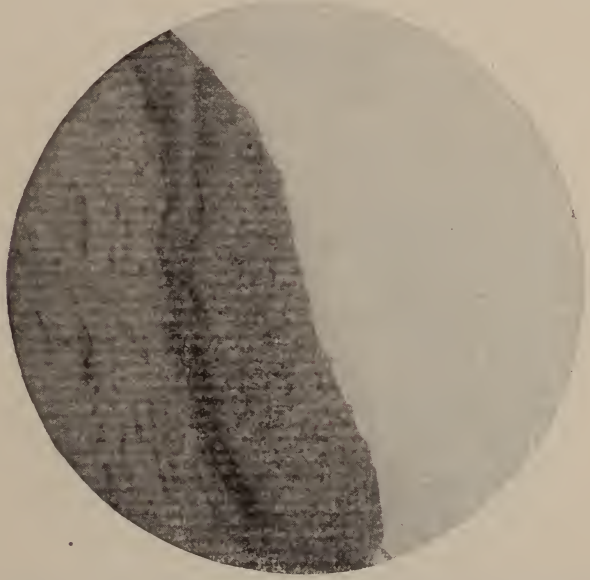
In negresses the glans clitoridis is free and the prepuce not

adherent, excepting in a few individuals who probably possess a large admixture of white blood.

In highly domesticated animals the glans clitoridis is free and the prepuce not adherent, with a few exceptions, which are of such character as to have no bearing upon my subject.

I presume that the glans clitoridis is free in wild tribes generally, but my attempts at getting data from the Indians are as yet a failure, because agency physicians, to whom I applied for information, state that Indian women would not allow them to collect statistics such as we wanted.

FIG. 6.



Mrs. D. Section through adherent glans clitoridis and prepuce, showing undeveloped mucous membranes along either side of the dark adhesion line, which represents a heterogeneous mass of irregularly disposed epithelium cells.

Some of the phenomena of physical degeneration of civilized races are of interest only as evidences of retrogression, but preputial adhesions in women are malevolent in influence when they involve much of the glans of the clitoris.

The disturbance caused by preputial adhesions depends, primarily, upon irritation of the terminal branches of the pudic nerve in the attempt of an erectile glans clitoridis to adjust itself to less elastic

surroundings, and it depends secondarily upon the irritation caused by retained secretions. The retained smegma is usually found in the form of small, white, inspissated particles, but sometimes a small area of developed glands secrete enough to make tension among adhesions, and when retained smegma happens to become transformed into an acrid, thin fluid, it may leak out gradually and cause pruritus or even excoriations about the vulva. Cases of the latter sort are not common, and it is in only a small proportion of the cases that enough glands develop under adhesions to secrete any important amount of smegma. The simple incarceration of the erectile glans of the clitoris is sufficient to account for most of the disturbances.

Fig. 7.

Miss E. Section through adherent glans clitoridis and prepuce similar to Fig. 6, but showing one of the spaces which was probably filled with retained smegma.

Irritation of the clitoris, from whatever cause, attracts attention to the part and leads early to desire for masturbation and to perverted sexual desires of various sorts. Those of us who do not hide our heads in the sand know that boys and girls naturally begin sexual life as masturbators. Among boys there are traditions to the effect that self-abuse is harmful, so that about the only boys

who injure themselves badly by masturbation are the ones whose parents keep them away from other boys for fear that they may learn bad habits, and the boys who live in thinly settled country districts. Among girls, however, there are no such saving traditions, and when preputial adhesions call the girl's attention to the clitoris, she may become a persistent masturbator without leading the family to suspect what she is doing, and in many cases not knowing that she is doing herself damage.

One of my patients, who is a devout church member, had never allowed herself to entertain sexual thoughts referring to men, but she masturbated every morning, when standing before the mirror, by rubbing against a key in the bureau drawer. A man never excited her passion, but the sight of a key in any bureau drawer aroused erotic desires. Another patient had a craving to stick the neck of a small vial into the urethra and keep it there all day. Another was excited by the sight of the soft-rubber end of a lead-pencil. These strange cravings, and also the commoner simple desire for frequent masturbation, disappeared at once upon separation of the prepuce from the glans clitoridis. In making inquiries it is always necessary to state to the patient that we find signs of irritation, and the patient then, knowing that we have a clue to her habits, will freely tell what she would otherwise hide. The results of such questioning are astonishing, to me at least. I need not go into details of the repelling part of the subject, but will state that it is high time for us to have special teachers to go about among the girls' schools and teach the pupils the most important thing that they could learn at school. The teacher should be a female physician, for she will not only have to make explanations, but will have to separate adhesive prepuces in almost all of the scholars. The separation of adhesive prepuces in young unmarried women should be done by female physicians any way, and such physicians can be abundantly occupied with this sort of work.

As a result of continued adhesion irritation, or of masturbation, one or both, the second series of disturbances appear—the reflex neuroses—and in this group of symptoms we have the most complicated and the most hurtful of the influences emerging from the peripheral irritation at the clitoris.

Chronic peripheral over-stimulation of the centripetal nerves connected with the centres of the spinal cord and brain lead, in ordi-

nary concatenation, first to acute reflex demonstrations, then to slow degenerative changes in sympathizing organs, and finally to further complications dependent upon the diseased or functionally disturbed organs. For instance, if clitoris irritation leads to relaxation of the uterine ligaments, and the succeeding malposition of the uterus leads to circulatory disturbances that cause degeneration of the ovaries, the patient may suffer more from the ovarian complication than from the causes of her ovarian disease. Removal of her diseased ovaries will not make her a well woman, however. The fast-growing girl with preputial adhesions may become languid enough to sag into scoliosis, and her lassitude, increased by masturbation, makes it difficult to stop the scoliosis, which is but a symptom in her case, until muscular relaxation is prevented by removal of first and second causes. The young asthmatic, the girl whose uterus droops until it curls up in anteflexion upon the pelvic floor, the patient who is listless and fretful and fanciful as to her food, the patient with enuresis, the patient with dysuria or with menstrual irregularities, the cataleptic, the hysteric, the epileptic, the patient with nervous dyspepsia or spasmodic stricture of the esophagus, or simulated hip-joint disease, or with pseudo-paralysis, the patient with sick-headache—all of these must be examined by the diagnostician for preputial adhesions. It is quite true, of course, that all of these symptoms may proceed from other peripheral irritations —from heterophoria very often indeed—but, nevertheless, the clitoris must be examined as a matter of routine.

Before neurotic habits have become established, the symptoms which are dependent upon preputial adhesions will disappear as quickly as does the sciatica that is dependent upon Dupuytren's contraction, or the cough that is dependent upon a bean in the ear, when the causes are removed. With older patients in whom neurotic habits have become established, the results are not so immediate nor so brilliant.

Baker Brown, I believe, was very near the subject of clitoris adhesions when he published his work *On the Curability of Various Forms of Insanity, Epilepsy, Catalepsy, and Hysteria*, but his method consisted, not in separation of adhesions, but in bodily removal of the offending clitoris ; and he found so many cures resulting from the treatment, that he was led astray, as many pioneers are, and amputated the clitoris so often that he was expelled from

the London Obstetrical Society, in 1867. If he had observed the rôle that clitoris adhesions play, he would not have fallen into disrepute, because his work, where useless, would certainly have been harmless.

It is strange that the subject has been overlooked by so many sharp-eyed gynecologists; but the clitoris is small and they were after larger game. I doubt if there is a man in this audience who knows if there is a large hole in his left-hand trousers pocket.

I have made a search of medical literature with the aid of the *Index Medicus*, and the *Index Catalogue* of the Surgeon-General's office, but have failed to find anything of importance upon the subject of preputial adhesions in the female.

Dr. B. Merrill Ricketts, in his noteworthy paper on Circumcision, says, referring to preputial adhesions: "Hystero-epilepsy is a result found in boys and girls alike. No girl or boy should be allowed to become one month old without a thorough examination of the genitals having been made. In many of these cases in girls, or even in women, adhesions, growths, or malformations are the source of the irritation, and should receive immediate and radical attention."

Dr. C. N. Jones, of Brooklyn, in one of his osteotomy reports, states incidentally, that all of the patients with bow-legs and knock-knees had preputial adhesions—a coincidence in signs of degeneration probably, and not relation of cause and effect.

Remondino, in his *History of Circumcision*, says: "The idea of masturbation or of irritation of the genitals ending in reflex neuroses is always, as a rule, associated with the male, and that it has not been associated with the female has deprived her of the same benefit that the prosecution of the study in this regard has been to the male sex."

Dr. M. F. Price, in a paper read before the American Medical Association, in 1874, incidentally refers to the case of a young girl, illy developed, who had neither walked nor talked, and who, on examination by Dr. L. A. Sayre, was found to have preputial adhesions with retained secretion. This, Dr. Sayre thought, accounted for the child's condition.

The above quotations and references include all that I could find upon the subject through the aid of the two great bibliographies, and yet there are thousands upon thousands of women in this

country who are suffering from reflex neuroses that are directly and solely dependent upon preputial adhesions. It has now been determined that many of the school-boys, who are known to be bright and yet who cannot study, have errors of refraction or heterophoria, and that they are repulsed by print without knowing why. The boy who finally becomes the expert base-ball pitcher might become an Alexander von Humboldt if his eyes were only properly cared for. As a parallel we can now learn that the girl who becomes irritable, disagreeable, and hysterical, may become charming, interesting, and possessed of all feminine graces when her prepuce is forcibly peeled away from the glans of the clitoris, and we have made a distinct step forward in civilization when this fact is generally appreciated by the profession. The importance of preputial adhesions in the female will be underestimated by some observers and overestimated by others, just as is the case with heterophoria; but those of us who try to take an intermediate position will know that while some patients are strong enough to withstand one or both of these conditions for a lifetime, there are countless numbers who sink beneath the load that seats itself so insidiously that the patient herself does not realize what she is carrying until neurasthenia untunes the resisting power. The weighty Hibernian woman who pins her skirt up at the bottom at six o'clock in the morning, and who, besides doing a hard day's washing, gets three meals for the family, milks four goats, and drags the old man out of the house, is not disturbed much by preputial adhesions, decayed teeth, prolapse of the uterus, hernia, and a number of other complications that would send a fragile girl to the madhouse.

My attention was first attracted to the subject of preputial adhesions in women by a case of nymphomania in a young unmarried woman. The nymphomania had existed for about eight years, and the patient, who was a refined and educated woman, finally gave up in despair and confined herself to the house, not caring to meet people, and declaring that, as the best physicians had tried to help her, there was no use for further attempts. The uterus was low and anteflexed, and she had received all sorts of orthodox treatment directed toward the uterus. The case seemed to be one in which there was peripheral irritation somewhere, and, after a search along that line, I finally discovered that the patient's prepuce was firmly adherent to the glans clitoridis. The prepuce was stripped from

the glans and the nymphomania disappeared at once. The uterus, after a little attention, remained in place as it never had done before, and the patient is now spirited and rosy, engaging in horseback riding, tennis, walking, and all of the pleasures of her companions. After this experience I examined and cared for a very large and miscellaneous lot of neurotic cases, giving attention to preputial adhesions, and it has certainly been a revelation to find what proportion of the cases are partially or wholly dependent upon chronic disturbance of the clitoris.

One of the striking cases was that of a young epileptic girl twelve years of age. I had previously sent her back to the family physician, informing him that as my practice was confined to surgery, I could not accept the patient. Little did I think at that time that the case was purely a surgical one; but later, when the child was again sent for, it was found that she had a tightly adhering prepuce and that she was a persistent masturbator. The patient was not taking any medicine and was having three and four attacks of grand mal weekly. Preputial adhesions were separated and the epileptic attacks stopped immediately. At the end of a month she had another attack, and then four more in rapid succession. On examination the prepuce was found to be as firmly adherent as it was at first. It was again separated, and the patient has had no more attacks to date—two weeks elapsed. This is not one of the cases in which "any operation" will temporarily stop the attacks, because the operation is too slight to deserve the dignity of the name. This patient has no epileptic attacks when the prepuce is free, and she has the attacks when it is adherent to the glans clitoridis.

After separation of preputial adhesions there is a marked tendency for them to recur, and women whose hopes are raised by disappearance of the old irritation and a subsidence of reflexes, are often very much depressed by the return of all symptoms. This can be avoided if the prepuce is stuffed with bichloride gauze at intervals of two or three days, until the appearance of normal smegma shows that the mucous surfaces have developed sufficiently to care for themselves. The method of separating adhering prepuces consists in first washing the vulva with bichloride of mercury solution. A couple of drops of cocaine solution are then thrown into the glans clitoridis through a hypodermic needle, and four or

five drops more are thrown anywhere into the prepuce. If one margin of the prepuce is then seized with fixation forceps, the thumb-nail will easily complete the work of clearing the glans. Raw surfaces are then sprinkled with aristol and the prepuce packed with a little ball of gauze.

Finally, allow me to say that I have found numbers of women, with all sorts of reflex neuroses, in whom the glans clitoridis was fully developed and free from any important adhesions; so we can readily preceive that, influential as preputial adhesions are, they form only one factor in the great group of peripheral irritators.

SUMMARY.

1. The prepuce and the glans clitoridis are bound together by adhesions, partly or completely, in about eighty per cent. of all Aryan American women.[1]

2. Preputial adhesions are rare among negresses, and seem to occur in only a few of the individuals possessing a large admixture of white blood.

3. Highly developed domesticated animals do not present examples of the degeneration, so far as the author's observation has gone.

4. When preputial adhesions are extensive, the glans clitoridis and the imprisoned mucous glands remain undeveloped, but they may develop later when the physician has separated adhesions.

5. The failure of the embryonic genital eminence to properly develop the prepuce and glans clitoridis for perfect cleavage, undoubtedly means that Nature is trying to abolish the clitoris as civilization advances.

6. The degenerative process represented by preputial adhesions is characteristic of the civilized type of *homo sapiens*, in which we find decaying teeth, early falling hair, and imperfect mammæ and eye-muscles.

7. Preputial adhesions which involve small portions of the glans clitoridis are of interest simply as anatomical curiosities.

8. Preputial adhesions involving a large part or the whole of the glans clitoridis may cause profound disturbance, and they are among

[1] Semitic women show decidedly less evidence of degeneration.

the most pronounced of the peripheral irritators. They cause desire for masturbation which leads to neurasthenia, and they are responsible for grave reflex neuroses.

9. Preputial adhesions form a very common factor in invalidism in young women.

The clitoris is a little electric button, which, pressed by adhesions, rings up the whole nervous system.

DISCUSSION.

The President.—I have listened with interest to the remarkable paper of Dr. Morris. If our investigations in the future substantiate the statements made by him to-day, we have certainly been introduced into a field of pathological conditions and changes and to a remedy for the relief of certain nervous symptoms that are astonishing. The paper is now before you for discussion.

Dr. Edwin Walker, of Evansville.—Personally I feel under obligations to Dr. Morris for calling attention to this subject, but it seems to me that this ground has been gone over to some extent before. Something like fifteen years ago Lewis A. Sayre, of New York, called attention to certain neuroses which he thought arose from adherent prepuce in the male, and at that time he also mentioned some cases that had occurred in young girls from the same cause. I was very much carried away by this theory, and through his influence circumcised quite a number of children suffering with different forms of neuroses, including chorea and epilepsy. I did not operate upon any female patients at that time. The results of all these operations were highly satisfactory for a short time. If any of you have had much to do with neuroses you have found that most of them improve after surgical interference. I remember the case of a little boy who had as many as twenty epileptic seizures in a day. Not a day passed without a number of these seizures. After the operation he passed several months without a seizure, but finally relapsed, and his condition was as bad as before. It was fifteen years ago when I did this operation. All of the cases relapsed.

In the early part of 1880 Dr. Landon Carter Gray investigated the subject of neuroses. He came to the conclusion that operation on patients with functional nervous diseases and the removal of peripheral

irritation was highly unsatisfactory. I believe many of our gynecological patients are simply neurotic individuals, and the lesions we find about the genitals are secondary in importance. In many of these patients rest and proper feeding will relieve the symptoms, whether the local trouble is removed or not. I do not mean by that the local trouble should not be removed. I am satisfied Dr. Morris's cases have been well selected; but I think he will be disappointed in many of them, especially the epileptic cases. I believe they will relapse. The subject is a very interesting one, and I shall watch the clitorides in my neighborhood.

Dr. W. P. Manton, of Detroit.—I have nothing in particular to add except to thank Dr. Morris for his paper and for calling our attention to this subject. In my consultations with insane patients I see every year a large number of women, and the majority of insane women, as is well known, are masturbators. Dr. Morris has given me a point which I think may assist in relieving the habit. To arrest secondary degeneration I have in certain cases removed the ovaries, and with good though not perfect results. It is possible that in a great many of these patients the preputial adhesions may have something to do with the constant desire these patients have for rubbing the parts. As Dr. Walker has said, a great many patients, especially males, that are afflicted with preputial adhesions are of the neurotic type. I have seen such cases; but I do not operate on males excepting in the case of young children. Occasionally I am called upon to remove a prepuce, and I have certainly seen good results follow. In my experience they have not relapsed after observing the patients for several years. I would like to ask Dr. Morris how long ago it was when he operated on the patients suffering from epilepsy?

Dr. Morris.—Ten weeks ago.

Dr. Manton (resuming).—I think the point made by Dr. Walker is a good one. Almost any operation upon epileptics is likely to be followed by a cessation of the seizures. I had a striking illustration of this a little over a year ago in the case of a young lady who had had petit mal since her seventh year. Sometimes she had had four or six seizures a day. She also suffered from dysmenorrhœa. Nearly every part of this patient's body had been examined and treated except the local organs. She was finally sent to me to see if I could do anything for her. I found she had an acute anteflexion, and thought possibly that the effect of the painful menstruation might have something to do in producing the convulsions. I dilated her cervix thoroughly, and put in a stem pessary, which she retained for seven months.

Although that girl had been having at times six or perhaps eight convulsions a single day up to the time of the operation—not always the same number; some days she would only have two or three—she now did not have a single convulsion. Her general health was restored. At the end of seven months she came back to me, having worn the stem pessary all that time. There was considerable irritation as a result of the presence and pressure of the stem. I removed it, and she was benefited for a time. But the convulsions returned, and I think the girl to-day is as bad as she ever was, perhaps worse.

I think that in order to have success in these cases we must take them early. If we wait until the peripheral irritation has existed so long as to produce secondary changes in the higher centres, then we will get perhaps only a moderate amount of relief from such an operation; we cannot cure our patients. If we operate before secondary changes have taken place, then we stand a good chance of entirely relieving the patient of the condition.

Dr. George H. Rohé, of Catonsville.—First, let me remark that I heartily support Dr. Manton in the position he has taken. With regard to the lesion that Dr. Morris has described, I think very likely that many of the unsuccessful results of treatment in so-called neurotic cases are due to the fact that the morbid habit of the brain and nervous system acting in a certain wrong way has been established, and even after removal of the primary source of irritation it can leave a permanent defect. We can explain it to ourselves by looking at the brain and the nervous system as a machine. The voluntary act or reflexed act, or any act that involves the operation of the nerve centres, whether simply centres of motion or the higher centres, is the motive power that sends an impulse in a certain direction. While the brain is entirely under the control of volition it is perfectly easy to keep that impulse moving in the right direction. When it goes astray and keeps on going astray for a certain length of time, I do not think any removal of the primary source of irritation that sent it astray will correct it afterward. We should early take these cases in hand. This is one of the points I expect to impress upon the Fellows of the Association to-morrow in my paper. I am sure Dr. Manton will do likewise from his experience; that is, if any great benefit is to result from surgical interference for neuroses or psychoses, it must be early, before the morbid habit has been firmly established. I am grateful to Dr. Morris for his researches, and I shall take opportunity to verify them in my practice.

Dr. A. H. Cordier, of Kansas City.—A few years ago Dr. Sayre

advanced views similar to those Dr. Morris has propounded, and reported a number of cases, but his experience was confined principally to boys with adherent and inflamed foreskins. He specified clearly the class of cases in which benefit from circumcision could be expected, and surgeons who select their cases according to Dr. Sayre's views are not often disappointed in the results following operative procedure. That a constant state of genital excitement produced by any cause in male or female may produce structural changes in the cord and other remote organs is, in my mind, a settled fact. We all know that a stone in the bladder can produce a pain in the glans penis; also that an irritation applied to the periphery may and is often manifested in remote organs—a prolonged reflex irritation will produce structural changes in the organs involved; especially is this true in the genito-urinary organs. I have in more than one instance relieved reflex nervous symptoms and thwarted permanent injury to remote organs by an early circumcision.

I see no reason why the same truths should not be applied to the female sexual organs.

Dr. Morris (closing the discussion).—For the sake of brevity I presented this subject in abstract, but my paper when examined in full in the *Transactions* will answer all the points brought out in the discussion. In it I say, and so meant to be understood in my remarks, that this condition is only one source of peripheral irritation, and that we have reflex neuroses from other peripheral irritations. I have tried in my paper to present the matter in such a way that I cannot be misunderstood. The paper as it appears will treat the subject as fairly as I am able to do it. I think Baker Brown was almost on the right track. If he had separated adhesions instead of amputating the clitoris he would not have been expelled from the London Obstetrical Society. He found such profound relief resulting from removing the clitoris that he tried to cure all kinds of reflex neuroses by doing it.

THE SURGICAL TREATMENT OF CANCER OF THE UTERUS:

With the Report of Twenty-five Cases of Vaginal Hysterectomy.

By CHARLES A. L. REED, M.D.,
CINCINNATI.

The surgical treatment of cancer of the uterus has ceased to be a theme for discussion. A careful examination of the literature of the subject published during the last five years shows that the consensus of opinion is favorable to total extirpation as against any other method of treatment. This verdict does not seem to be affected in the least by the report of incredible numbers of cases of assumed cancer of the cervix treated by electro-excision and other so-called conservative measures. The ascertained facts upon which the practice of total extirpation is based are: 1. Cancer of the uterus is primarily always a local disease. 2. It develops by the progressive invasion of tissue up to a certain point, when, 3, It is propagated through the lymph channels. 4. Cure of the disease can be effected only by the extirpation of all malignant tissue, 5, Which can be accomplished only before the free cells are carried from the seat of primary infection into the lymphatics.

The point at which cancer of the cervix ceases to develop by the progressive invasion of tissue and avails itself of the lymph channels can never be accurately determined; but as the pathological process has its origin in the endocervical epithelium, generally at or near the external cervical margin, it follows that considerable tissue must be traversed before the larger lymph channels, which are situated farther up and to the outside of the uterus, are reached. This is the ideal period for operation. When the malignant infection has once reached the lymphatic circulation the further progress of the

disease is along well-defined anatomical channels. The first gland into which centre any considerable number of lymphatics from the upper segment of the vagina and the cervix is that described by Championnière as being located at the interior and inferior angle of the broad ligament at the isthmus of the uterus. It is this gland that we so frequently feel in an enlarged condition in certain cases of endometrial inflammation, and it is this gland that first suffers suppuration following septic invasion from puerperal trauma of the cervix. There are certain other vessels, however, as described by Le Bec, which traverse the base of the broad ligament and empty into the obturator glands, which are located on the obturator membrane, while certain others, as demonstrated by Berry Hart, empty into the hypogastric glands which lie between the external and internal iliacs on either side. These deep glands, with others between them and the thoracic duct, are but so many barriers to prevent the easy invasion of the system by malignant or septic elements through the lymph channels, and general systemic contamination does not occur until after these glands have successively yielded their resistance. If we bear this in mind we can readily understand the progress of this disease as it is exemplified in advanced cases.

There is another anatomical fact that it is well to bear in mind, for by its accurate appreciation many misconceptions as to the pathology of this and other diseases will be avoided. The lymph-vessels which communicate with the peritoneal stomata are all efferent in their function as related to the peritoneal cavity, and consequently have been properly termed the natural drains of that viscus. These vessels, as they approach the central trunks, are provided with valves, as demonstrated by Leopold and Sappey, and confirmed by Berry Hart. These valves prevent the reflux of the contents of the lymph-vessels into the peritoneum. This is illustrated by the fact that the staphylococcus which may have found its way into the lymph channels through some injury to the uterine tissues incident to a dirty delivery, and which may have induced extensive suppuration in the lymphatic and cellular structures of the broad ligaments, never reaches the peritoneal surface through the stomata. These anatomical facts, with the illustration which I have cited, become important in explaining why metastasis from carcinoma of the cervix is never manifested in the peritoneum,

which structure becomes involved only by the progressive invasion of tissue. These facts have so grown to be the alphabet of both the pathology and surgery of this disease that I feel the necessity of apologizing for recapitulating them in this presence; yet they lead up to the logical conclusion which I wish to emphasize, viz., that to remove all the diseased tissue we must operate early, and that to make sure of the complete removal of diseased tissue we must remove the entire womb.

I have been so impressed with the correctness of this view that I have never considered myself at liberty to do high amputation of the cervix for cancer. On the contrary, my practice has been restricted exclusively to total extirpation in all cases that seemed to offer any prospects of success from operation at all, while cases that were manifestly beyond cure were either not operated upon at all, or merely curetted as a conservative measure. I beg on this occasion to lay before you the result of my total extirpations (see table on next page).

In analyzing my cases nothing could be more unjust than to consider them as an entirety, and to indiscriminately set down the ultimate results as against the general practice of total extirpation. When I began this series of cases, now more than five years ago, the doctrine that obtained with the profession in my section of the country was to submit only advanced cases to total extirpation, while those in an earlier stage were either treated by caustics, excision of the cervix, or neglect, or all three. A glance at the table will show that many of my earlier cases were of the advanced sort, and that the mortality from recurrence was confined almost exclusively to that class. A cheerful prospect is offered by the reflection that my later cases have nearly all been of comparatively short standing, and it is my regret that sufficient time has not elapsed to justify their consideration with reference to ultimate results. I do not feel that we ought to consider any case in that connection in which at least two years have not elapsed since operation. This rule leaves me but fourteen cases to which to invite your attention, and these I shall divide into two classes, viz., those in which the disease was of more than six months' previous duration, and those in which it was six months or less.

Cases of Vaginal Hysterectomy for Cancer of the Uterus.

No.	Age	Social state.	No. of children.	Previous duration of disease.	Date of operation.	Immediate result.	Remote result.	Attending physician.	Remarks.
				Months					
1	37	Married	2	5	Nov. 20, 1887	Recovery	No recurrence 1891	Dr. J. G. Reed	Have had no advice from patient since November, 1891.
2	48	"	1	16	Jan. 11, 1888	"	Recurrence	" W. F. Taylor	Recurrence after twenty months. See Trans. Amer. Assoc. Obstet. and Gyn., vol. iii. 198.
3	32	Widow	1	4	April 1, "	"	Perfectly well to-day	" W. F. Taylor	
4	41	Married	3	13	Oct. 18, "	Death	.....	" Johnstone	Patient exsanguine before operation. Death from shock.
5	47	"	6	6	Dec. 16, "	Recovery	Recurrence	" C. A. L. Reed	Death from recurrence after eighteen months.
6	32	"	1	7	Oct. 5, 1889	"	"	" H. P. Hall	Death from recurrence after two years.
7	42	"	4	8	Dec. 20, "	"	Perfectly well to-day	" J. J Stricker	
8	57	Widow	10	7	Feb. 12, 1890	"	.....	" Fennell	See Trans. Ohio State Med. Soc., 1890.
9	40	Single	...	9	April 7, "	"	....	" J. H. Tate	Disease had already invaded broad ligament. Death after eleven months.
10	67	Married	4	18	April 26, "	"	.....	" Hancock	Subsequently died from other causes
11	40	Widow	1	4	April 2, "	"	No recurrence	" C. L. Armstrong	
12	34	Married	0	3	June 14, "	"	" "	" Johnstone	This case is now entirely well.
13	52	Widow	5	8	July 20, "	"	....	" B. W. Davis	Disease involved broad ligament at time of operation.
14	37	Married	3	2	Sept. 5, "	"	No recurrence	" Drake	
15	33	Widow	1	4	Nov. 16, "	"	" "	" J. H. Tate	
16	42	Married	1	2	Jan. 11, 1891	"	" "	" C. A. L. Reed	Patient last heard from in November, 1891.
17	49	"	4	4	Feb. 23, "	"	" "	" Moore	
18	43	"	1	3	April 17, "	"	" "	" J. G. Reed	
19	31	Widow	4	3	June 4, "	"	" "	" Orr	
20	55	Married	7	4	Sept. 15, "	Death	.....	" Sauer	Death from iodoform poisoning on second day.
21	48	"	3	4	Nov. 5, "	Recovery	No recurrence	" Brown	
22	37	Widow	4	3	Feb. 9, 1892	"	" "	" Ward	
23	41	Married	1	2	Feb. 23, "	"	" "	" Rice	
24	39	"	2	2	May 4, "	"	" "	" C. A. L. Reed	
25	43	"	2	5	Sept. 2, "	"	.....	" W. P. Weaver	

CASES IN WHICH THE DISEASE WAS OF MORE THAN SIX MONTHS' DURATION BEFORE THE OPERATION.

No.	Age.	Previous duration.	Date of operation.	Recurrence.
2	48	16 months	January 11, 1888	After twenty months.
4	41	13 "	October 1889	Death from shock two hours after operation.
6	32	7 "	October 5, "	Recurrence after two years.
8	57	7 "	February 12, 1890	Death from other causes.
9	40	9 "	April 7, "	Broad ligament involved at time of operation.
10	67	18 "	April 26, "	Death from other causes.
13	52	8 "	July 20, "	Broad ligament involved at time of operation.

Average age 48 years + 10.4 months.
Per cent. of recoveries after two years, 0.

CASES IN WHICH THE DISEASE WAS OF SIX MONTHS' OR LESS DURATION BEFORE THE OPERATION.

No.	Age.	Previous duration.	Date of operation.	Status presens.
1	37	5 months	November 20, 1887	Well after four years.
3	32	4 "	April 1, 1888	Well.
5	47	6 "	December 16, "	Recovered after eighteen months.
7[1]	42	.....	December 20, 1889	Well.
11	40	4 months	April 2, 1890	Well.
12	34	3 "	June 14, "	Well.
14	37	2 "	September 5, "	Well.

Average age 39 years + 4.3 months.
Per cent. of recoveries after two years, 85.2.

These tables need but little comment. Of course, my experience is too limited to justify final conclusions based upon it, but as far as it goes it is significant. Of the seven delayed cases not one is now alive; of the seven cases operated upon promptly six are alive and well. It would seem that age is a factor in determining results from these operations, much more so than in ovariotomy, those of advanced years affording the largest mortality. The lesson taught, over and above all others, by this exhibit is that the time to operate upon these cases is at the earliest possible moment after the diagnosis is established.

[1] This case was reported (Transactions of the Ohio State Medical Society, 1890) as having been of eight months' previous duration. I have since interrogated her as to her clinical history, and am convinced that evidences of malignancy were not of such long duration.

DISCUSSION.

Dr. Edwin Ricketts, of Cincinnati.—Mr. President: If there are any three men in this room that have reasons for the faith that is in them, they are Drs. Reed, Hall, and myself. Five years ago high amputation was the operation for cancer of the cervix advocated in our region. Now, vaginal total extirpation is the only procedure thought of—a change brought about largely through the leadership of Dr. Reed, and which is justified by the results obtained.

One word as to the early diagnosis of cancer of the uterus. Are we to depend upon curettings as handed to the microscopists? If so, microscopy must needs advance much farther than it has up to the present time before we can make as early a diagnosis of cancer of the uterus as is necessary to warrant a reliance upon it for the purpose named. I will cite a case in this connection. A lady consulted me two years ago from West Virginia, and the curettings taken from her uterus—which I suspected was cancerous, but gave her the benefit of a doubt—were placed in the hands of four different microscopists. The same slide was examined by four different microscopists. Two said it was cancer, two said it was not. The same slide was sent to an eminent Vienna teacher and microscopist, who returned the slide with the reply that he would not venture an opinion. The woman was simply treated for endometritis. She is sixty-two years old, and now weighs twenty-five pounds more than she did at that time, and her health is all we could ask. There was no cancer. I repeat, that if we are to gain anything by microscopy at a time when vaginal hysterectomy for cancer is going to avail, microscopists will have to be able to recognize cancer earlier than they do at the present time. We condemn these cases sometimes on suspicion, and that is better, perhaps, than to condemn them microscopically.

Dr. Joseph Hoffman, of Philadelphia.—Something like two years ago Dr. Wilber and I stood hand-in-hand in agreeing that vaginal hysterectomy for the cancerous uterus was justifiable by results, because the pathology was not always determinable. The operation of high amputation is one that is adopted and resorted to by many If there are any lines to decide the exact degree of invasion; if there is any way to tell whether the tissue is involved only to the extent of so many millimetres up, or in, then high amputation would have some justification. But the idea is just here: it is impossible to tell just how far the disease has gone, just where its limits are, for the surgeon operates and finds it in the broad ligament when it appears to be only in the cervix or uterus. He knows he has been working without reason,

working on the lines of experimentation; that he has been doing a really more difficult operation—an operation that takes more time and increases the risk.

I have seen one of the leading operators in this country use caustic and tell how beautifully it acted, when the caustic had almost burned the woman's vagina through to the rectum. We ought not to uphold an argument simply for the sake of argument, when it is not sustained by results. We know that in cancer of the uterus, just as in cancer of the lip, breast, or any other part whatsoever, the sooner it is cut out and gone the less liability there is to recurrence.

Dr. L. H. Dunning, of Indianapolis.—I will not occupy much time in speaking upon this subject, but I desire briefly to express my views for the reason that they have undergone a change during the last three years. Previous to that time I was an advocate of the operation of high amputation, and did something like thirty-five high amputations with most excellent results. These cases were reported and published in many of the medical journals, and received some attention at the time. Two or three years ago Dr. Reamy and I opposed Dr. Martin in the Section on Obstetrics and Diseases of Women at the Nashville meeting of the American Medical Association when this subject was up for debate. Dr. Reamy and myself took the ground that where the involvement was slight, high amputation offered the best results for the reason that it was more easily accomplished, with less danger to the patient, and better ultimate results.

I am not entirely convinced yet that high amputation is not quite as good and quite as favorable in its results as total extirpation in very many cases. I had a striking illustration in support of this not very long ago. In one case I did a high amputation of the cervix in a patient four months after delivery, who had what microscopists told me was adenoma. I examined the patient a few days ago and there has been no recurrence, it being a year and a half since I operated. One week afterward I totally removed the uterus of a patient, who made an excellent recovery and has had no secondary operation for a return of the difficulty. From very many instances of the kind I am led to believe that high amputation need not be condemned in all cases, but that it frequently does yield good results where the operation is done early; and yet during the last two or three years I have done probably eight or ten operations of total extirpation of the uterus, with a small mortality. In all the cases where the operation was done early the results were excellent.

I have quite a number of cases of high amputation under observation yet, that were operated upon six years ago, and they are doing well. One secondary operation was done on a patient six years ago

and another eight years ago. They are both doing well. The microscopists agree that the trouble was epithelioma. I do not think we are justified in making too sweeping statements in regard to this operation. I do not think it prudent for us to call high amputation unscientific, because results show that it does quite as well as any other method. Some operators claim as good results with this as from total extirpation. I have not seen the statistics, however, bearing out that statement.

Dr. Reed (closing the discussion).—I have but little to say in conclusion. Dr. Hoffman has spoken on the other side of the question. He has stated some things that were true and several things, so far as conclusions were concerned, in which I do not concur.

I am very much gratified indeed to hear Dr. Dunning say that he is now doing total extirpation much more frequently than formerly. I remember several years ago he and I had something of a discussion upon this question before a medical society in Indiana. At that time he was a strenuous advocate of high amputation. I am willing to concede the point which he makes, that there are fair records of ultimate recoveries in some of these cases. I am perfectly willing to agree with him that in a few instances the sequels of these cases would indicate that the disease has been totally eradicated by the operation of high amputation. This, however, does not alter my firm position, nor does it in the least modify my contention—namely, that our inability to know when we have thus successfully relieved our patients is the one impediment to the successful application of high amputation. We are much more sure of our ground when we remove the uterus entirely than when we remove only a segment of it, and it is in view of this fact that I contend that we give our patient a much better chance for her life when we resort to the former operation.

I do not like high amputation so well as total extirpation for primary surgical reasons. In the first place, high amputation is a much more difficult operation, and the dangers which we encounter from hemorrhage and sepsis are very much more considerable. Even if I felt sure that I could cut out all of the disease by the other operation—that is, the operation of high amputation—I would still desist from doing it for the reason that it is surgically not so easy, nor is it surgically so safe to the patient, as is total extirpation.

Permit me to say, in conclusion, that it is a source of extreme gratification to me to notice with what unanimity those who formerly advocated and practised high amputation of the cervix are now recognizing the logic underlying the other operation, and are doing total extirpation in the majority of all cases that come to their hands. This is a step indicative of progress, and one which we, as pioneers in the operation of total extirpation, recognize with extreme satisfaction.

EXPERIENCES IN ABDOMINAL SURGERY ON THE INSANE.

By W. P. MANTON, M.D.,
DETROIT.

In his *Manual of Insanity* Spitzka makes the following statement: "Disordered states of the uterus and ovaries, especially those manifesting themselves in disturbances of menstruation, have been supposed to play an important part in the causation of insanity. It is known, however, that the grossest lesions of the female generative organs are not usually complicated by such mental disturbance as justifies calling it alienation. Those pretty cases in which a delusional insanity is instantaneously cured by restoring a retroflected or retroverted uterus to a normal position do not seem to occur nowadays, and the gynecological epoch of psychiatry seems to have passed by, taking its adieu with the sacrifice at the Blackwell's Island Asylum of Mary Ann Mullen, a sufferer from unrecognized katatonia, on the altar of oöphorectomy. It would have been as reasonable to extirpate the bedsore of a sufferer from paretic dementia, and to cut off the hematomatous ear of a terminal dement, with the hope of curing his insanity thereby."

I have quoted this paragraph simply to show the feeling which is entertained, and to a certain extent I believe rightly, by most alienists in regard to the curability of insanity by abdominal or other operations.

In the heat of the discussion between alienist and gynecologist on the point of cure, however, a most important question, it seems to me, has been crowded out of sight—a question too long neglected, but which, from a humanitarian point of view, is as important and demands as honest an answer as the mooted query: Are insane women capable of suffering from local disorders? does peripheral irritation exert any influence on the mental condition or

disease, and can surgery offer hope of amelioration, possibly cure, to these unfortunate sufferers?

In my capacity as consulting gynecologist to two State asylums and one private institution for the insane, a large number of cases come under my observation annually, and, from a somewhat careful study of these, I can answer the above most positively in the affirmative. While it is true that in certain insane women a state of anesthesia may exist, so masking conditions that no suspicion of their nature is entertained, but which, if present under other circumstances, would give rise to the greatest suffering; and in others excessive hyperesthesia makes the most trivial ailments to appear serious; and while sexual delusions are a frequent symptom of the disordered brain, still I feel sure that a very large number of mentally sick women suffer, and know that they suffer, from some local disease, which is manifested to them in the form of pain or irritation.

The subject is many-sided and complicated, and in the present communication I can hope to show only a limited picture of the relief-results, which I hope increased future experience may bring out more clearly and forcibly.

During the past three years I have performed seven abdominal operations upon insane women. The first operation was done three years, the last eighteen months ago. Sufficient time has therefore elapsed to enable us to judge of the results. It may be stated here that in only one instance out of the seven was it thought or hoped that the operation might possibly result in the restoration of the mental health of the patient. The patients were treated simply as women suffering from pelvic or other local disease. The operations were as follows: removal of appendages, three cases; ovariotomy, two cases; ventral hernia, one case; fibroid of abdominal wall, one case.

MASTURBATIC INSANITY.

Case I.—The habit was gradually undermining the patient's general health and aggravating her mental condition, and Dr. Burr, Medical Superintendent of the Eastern Michigan Asylum, concurred with me in the opinion that, as the vicious practice was intensified at the menstrual epoch, the removal of the ovaries and tubes as a source of irritation would probably ameliorate the condition. Both ovaries were

found enlarged and cystic—particularly the left—and the tubes were thickened.

Two hours after the operation the patient got out of bed and walked across the room, and several times during the first day sat up on the bed or assumed the knee-hand position. In spite of this, however, she made a perfect recovery without an untoward symptom. The subsequent history of the case has been most satisfactory. The masturbatic habit has not been cured, but it has been lessened, and the patient's physical condition improved to a marked degree. She has menstruated regularly since the operation.

I am kindly permitted by Dr. Burr to copy the following from his forthcoming report (1892):

"In one case, mentioned in the last report, of Tait's operation for the relief of mental symptoms aggravated at the menstrual epoch, marked good has come to the patient. Dementia was already pronounced, and little was hoped from the operation aside from checking its further progress and correcting vicious and degraded habits. These results have been accomplished in a measure. The expression is pleasanter, her conversation is more rational, the objectionable utterances she was prone to make are fewer, the extreme degradation into which she had fallen is lessened, and the difficulties encountered in caring for her are less noticeable."

The night supervisor who has had this patient under observation since her admission to the asylum makes this statement:

"No one knows," she says, "how degraded that girl was; you could imagine the worst possible, and that would not express it. I do not see how anyone could take care of her before [the operation]. I consider M. a nice patient now, and I know that she is a great deal better. She is not violent now, and she will mind what you say to her."

RECURRENT MANIA.

Case II.—This patient, an unmarried girl, aged twenty-five years, was admitted to the Eastern Asylum in 1885. She was of good heredity, but naturally stubborn, self-willed, and variable in her moods. "In excitement, which was always present in greater or less degree at the menstrual epoch, she had sexual delusions, was emotional, and the subject of psychical storms, during which she was prone to assault those about her. She placed credence in the delusional statements of other patients, and during excitement was accustomed to say that she had never controlled herself and never would. She suffered from habitual constipation, and experienced pain and headache at the men-

strual epoch. Two years after admission she was taken home for a visit, having shown for a considerable period of time comparative freedom from mental disturbance. This condition did not continue, however. While at home she had intervals of quiet, during which she controlled herself, but at menstrual epochs was irritable, suspicious, and impulsive, prone to make assaults, disorderly, and full of wrong ideas of life. In March, 1890, it was noted that the marked coincidence between mental disturbance and the menstrual function she herself recognized and frequently referred to. For a time preceding and during the menstrual period she was extremely impulsive, avoided the society of others, was careless in her personal appearance, used profane language, and destroyed clothing and other articles. Between these periods she was comfortable and would express regret for such conduct."

In November of the same year I removed the appendages. Continuing, the report says: "After the operation her moods were variable as before. She ceased to menstruate. Periods of mental confusion frequently took the place of previous excitement, but on occasions she was much disturbed. Her appetite was capricious. She was removed from the asylum in 1891, and the subsequent history of her case has not been learned. In general it may be said of her mental condition, however, that, up to the time of her removal, she had been more comfortable since the operation than before. There was less active, turbulent excitement, and she was more easily controlled. The attendants who had the immediate responsibility of her care realized that the operation had been productive of decided benefit."

PETIT MAL WITH DEMENTIA.

Case III.—The subject of the following history was an unmarried girl, aged nineteen years, who was admitted to the Eastern Asylum in 1890. Her maternal grandfather had epilepsy. The patient's illness had begun at the age of six; her mind was naturally somewhat feeble, she had always been erotic, and was suffering from dementia, the result of the epilepsy. Her erotic tendencies had led to her betrayal, and she was pregnant at the time of her admission. In December she was returned to her home to be confined, was delivered of a stillborn child (breech presentation), and re-entered the asylum in March, 1891. As it was noted that the epileptic seizures were more apt to occur at the menstrual periods, salpingo-oöphorectomy was performed, hoping that thereby the symptoms might at least be mitigated. Dr. Burr says: "No appreciable improvement occurred in her nervous condition in

consequence of the operation, although she was kept under observation to determine this question. Her correspondence subsequent to her removal, however, indicates that her moral tone has much improved."

OVARIOTOMY.

Case IV.—The history of this case was published in the *Transactions* of this Association for 1889, and need not be here further dwelt upon, save to note that the patient has been greatly benefited mentally, and is decidedly more comfortable physically than before the removal of the tumor. Albumin still continues to be excreted by the kidneys, and arterial changes in the brain have undoubtedly taken place,[1] so that all hopes of complete restoration to mental health, which were at first entertained, were long ago abandoned.

"There has been, however, during the past year, a marked improvement in both her mental and physical condition. She is in good health and quite strong, takes a moderate amount of exercise, and is extremely industrious in needlework. She converses very little, but will usually answer questions."[2]

These remarks, taken from the report of 1890, are equally applicable to the patient's present condition.

When we compare the present state with that which existed before the operation, the changes which have taken place become strikingly apparent.

Case V.—The following case I quote somewhat at length on account of its interest and bearings on the relation of morbid mental states to degenerations of the viscera: "A widow, aged forty-nine years, with a strong hereditary tendency to mental disease, displayed, during the eleven years of her treatment in the asylum, hypochondriacal fancies, sexual delusions, and delusions of persecution. In connection with these there were also extreme irritability and delusions of extravagance. Shortly after her admission she had an attack resembling syncope, attended by congestion of the lungs and difficult breathing.

[1] See "Chronic Bright's Disease (Arterio-capillary Fibrosis) in its Relations to Insanity." By E. A. Christian, M.D., Assistant Superintendent Eastern Michigan Asylum.

[2] Biennial Report of the Eastern Michigan Asylum, 1840, p. 68. Before the operation this patient was poorly nourished, careless, idle, destructive, and mentally variable. Her only conversation consisted in the monotonous reiteration, for hours at a time, of some sentence as, "Give me a drink of water, please, eh!" or, "Give me a piece of bread and butter, please, eh!"

For several months she was suspicious of poison and unable to take exercise without the occurrence of faintness. Within a year, however, her physical health had become very much improved, but she grew irritable, sarcastic, unwilling to work, and had illusions of hearing and visceral delusions. Dementia progressed slowly, being chiefly shown in incoherence in conversation. Sexual delusions and delusions of extravagance increased and became intensified. She believed herself chloroformed and ravished at night. Her language toward her associates was of the most objectionable character, owing to delusions of personal contamination, and the attendants particularly fell under her ban of displeasure. Delusions of poison developed, leading her eventually to refuse food altogether and necessitating mechanical feeding. She had hallucinations of smell, and complained of a stench in her room, attributing it to 'nasty men.' She had the impression that certain of her fellow-patients were men, was unpleasant toward them, and made numerous complaints. In October, 1885, she expressed the delusion that there was some one in the cellar hurting her private parts. These and similar sexual delusions were always more pronounced at the menstrual epoch. She treated her relatives who came to see her unpleasantly. She became destructive and refused to wear dark-colored clothing. She persisted for many months in refusing food, and showed physical deterioration in consequence of it. She opposed everything that was suggested looking to her comfort, and was particularly averse to bathing, and required to be carried from place to place, to be dressed and undressed, and looked after as a child. Her aversion to food being eventually overcome, she took on flesh with great rapidity, and became so corpulent that the difficulties experienced in lifting her about were much increased. In the winter of 1886 she complained of rheumatic pain, but this was unaccompanied by swelling of the joints. Later on she imagined that she owned the asylum buildings, that her great-uncle was president of the world, and that her own voice could be heard a long distance. She held daily communication with the president, maintained that her person was violated frequently, and had hallucinations of vision—crocodiles passing through her room and remaining under her chair. During the following year her mental symptoms improved. She became pleasanter in her relations with the attendants, ceased to require assistance in dressing and bathing, and walked a short distance in the open air. She also made one of her attendants her confidant, and mentioned to her, among other things, that her extremities and back had been weak ever since her marriage. This she assigned as a reason why she could not walk far. In March, 1889, she had an attack of indigestion and

vomiting, and a condition of general hyperesthesia was present. At this time it was noted that she was excessively fleshy, and the amount of adipose was a decided inconvenience to her; but a careful investigation of the chest and abdominal organs gave negative results. In July of the same year she had an attack of phlebitis of the leg, and in the spring of 1890 a similar attack. From this time on such attacks repeatedly occurred, but were of brief duration. In February, 1891, nausea again developed and she remained in bed. At this time it was discovered that the abdomen was greatly distended with ascitic fluid, so much so that breathing was impeded. The heart and liver were crowded up, and there was a marked prominence at the umbilicus."

I first saw the patient at this time. The abdomen was so greatly distended that nothing but a fluctuation wave from thin fluid could be made out. I therefore resorted to tapping to relieve the pressure, as breathing was fast becoming impossible, and was not a little surprised to find that only a few drops of a thick, gelatinous fluid ran through the trocar.

Cœliotomy was then done, and, after the escape of a very considerable quantity of ascitic fluid, a large, multilocular ovarian tumor, springing from the right side of the uterus, came into view. The pedicle of the growth had a half-twist, and the tumor itself was dark and filled with semi coagulated blood.

The patient reacted poorly from the operation, suffered much from shock, and finally succumbed to exhaustion four days after the operation.

Commenting on this case, Dr. Burr says:

"Certain queries suggested by this case are: Whether a latent ovarian disease was the immediate cause of the morbid mental symptoms? To what extent were the hypochondriacal fancies and delusions of persecution due to local disease? To my mind the character of her delusions points to ovarian irritation, and the conclusion seems reasonable that had an operation been performed earlier in her disease, before mental degeneration was so far advanced and delusions so firmly fixed, good might have resulted."

EPILEPSY; DEMENTIA; VENTRAL HERNIA.

Case VI.—This resulted from the giving way of the cicatrix from some former abdominal operation, the nature of which I have been unable to ascertain. The contents of the sac, which was as large as a child's head, could apparently be easily returned to the abdominal cavity, and the

hand slipped between the recti muscles could map out the pelvic contents. The projecting mass, by its weight, etc., greatly interfered with the patient's locomotion (especially in getting up and down stairs it was a constant source of pain and irritation), and had begun to ulcerate on its lower surface. At the operation it was found that the sac was lined throughout by hypertrophied omentum which was adherent, and fully a pound of which, it is estimated, was separated and removed. In dissecting the omentum from the lower angle of the hernial opening, the bladder, which was drawn up into the sac, was accidentally incised for about two and one-half inches.[1] This opening was closed by a row of Czerny-Lembert sutures, above which was a second row of interrupted sutures; a glass drainage-tube was placed behind the uterus, and the abdominal wound closed in the usual manner. In order that there might be no accumulation of urine in the bladder, a Skene self-retaining catheter was inserted. A couple of hours or so later, as I was about to instruct the nurse how to withdraw the fluid from the drain, the patient handed me out the tube, which she had removed herself, evidently under the impression that it was something that I had forgotten at the operation. She had found the catheter uncomfortable, and so dispensed with it also. No attempt was made to reintroduce the drainage-tube, as the patient was in excellent condition. The urine was drawn every two hours for the first two or three days, and later at less frequent intervals. This patient also wholly removed the dressings on one occasion, and during the first forty-eight hours was decidedly intractable.

The recovery of this patient was somewhat retarded by the formation of a small abscess in the abdominal wound, but was ultimately perfect.

That the cicatrix is sufficiently strong for all practical purposes was demonstrated by the patient herself, who, shortly after her return to the hall, jumped from the balustrade of the porch, some four or five feet from the ground, without experiencing the slightest pain or inconvenience afterward, and without detriment to the newly-formed scar tissue.

This patient's mental condition was considerably improved; she was pleasanter and much less irritable than before the operation.

PARANOIA; FIBROID OF ABDOMINAL WALL.

Case VII.—This patient was a young and delicate-looking Swedish woman, who entered the Northern Michigan Asylum in 1887, suffering

[1] A silver catheter had been passed early in the operation, and the position of the bladder supposed to have been ascertained.

from puerperal insanity. The records furnish very little information in regard to her previous condition, save that she was the wife of a laborer, and that three weeks previous to her admission she had given birth to a child. Her mental ailment had come on immediately following delivery. When admitted she was actively excited and had delusions of apprehension. During the following three years of her sojourn at the institution her condition varied; at times she was ladylike, quiet, and self-controlled, at others irritable, striking the attendants if crossed in her desires, and, though never actually suicidal, occasionally would indicate her desire to cut her own throat. In March, 1890, the attendants discovered that the patient's abdomen was enlarging, and examination revealed a tumor which extended laterally from near the median line to the right wing of the pelvis, and upward from the pubes to just below the umbilicus. It was noted that the growth was hard, non-fluctuating, and apparently pedunculated. Three weeks later, the record states, the growth had increased in size, and had become so noticeable through the clothing that it gave the patient much concern to conceal its existence. By April the growth had extended upward to the lower margin of the ribs and across the median line to the left, and "stood upward from the surface with the prominence of a gravid uterus." Fluctuation could not be made out, but it was thought that, from the rapid increase in the size of the tumor, it was probably an ovarian cyst. *The patient fancied herself pregnant*, and was rather pleased at the state of affairs.

The tumor was readily shelled out of its bed and the patient made a good recovery. For a year or so her physical improvement was gratifying, but, aside from the disappearance of the delusion of pregnancy, her mental condition remained much the same. August 5, 1892, Dr. J. D. Munsen, Medical Superintendent of the Northern Michigan Asylum, wrote me: "I scarcely think that Mrs. H.'s mental condition is as good as it was at the time of the operation. I do not think that the removal of the tumor in any way ameliorated her symptoms."

Conclusions.—While the number of cases reported is far too few to warrant any positive deductions, the results obtained, both from a physical and a mental point of view, would seem to indicate that abdominal operations in suitably selected cases of insane women may be productive of great good.

THE RELATION OF PELVIC DISEASE AND PSYCHICAL DISTURBANCES IN WOMEN.

By GEORGE H. ROHÉ, M.D.,
CATONSVILLE.

Physiology, as well as daily observation, teaches the interdependence of mental and bodily functions. Authorities upon mental disease recognize the great influence of somatic or bodily causes in the production of insanity. However, the attention of alienists is concentrated almost exclusively upon the brain in the search for causes of mental disturbance. True, the brain, as the organ through which the phenomena of mental action are displayed, must necessarily be the immediate seat of disturbances of nutrition as causative of disturbances of function, but there can be little doubt that in many cases some more remote cause is present in the physical organism, to which the disturbance in the brain function are traceable. The depressive effect of disorders of digestion upon the mental state is recognized by all. The late Dr. J. S. Jewell showed by a series of well-observed cases that often simple melancholia is dependent upon overfilling of the colon, and that appropriate treatment of the somatic condition relieved the mental depression. More recently Ayres[1] and Woodbury[2] have called attention to the relation of morbid conditions of the digestive tract to certain forms of mental disturbance. Herter and Smith[3] show, by a series of very suggestive and interesting observations, the probability of the dependence of the epileptic discharge upon intestinal putrefaction. Burr, in an extremely practical and suggestive paper,[4] also relates cases of hypochondriasis depending upon a diversity of morbid conditions of the physical organism. Dr.

[1] Medical News, July 4, 1891.
[2] Journal of the American Medical Association, vol. xv., p. 598.
[3] New York Medical Journal, August 20 and September 3, 1892.
[4] Physician and Surgeon, 1891.

Alice Bennett[1] has clearly shown the influence of Bright's disease in the causation of insanity, pointing out not only the frequency with which the latter condition is dependent upon the kidney disease, but giving a clear account of the mental symptoms which are most frequently present in the insanity accompanying Bright's disease. Riggs[2] and Tuttle[3] also add their testimony as to the frequency with which kidney disease is associated with insanity. Christian[4] had previously shown that Bright's disease not infrequently stands in a causative relation to insanity.

Clouston, I think, makes the observation that delusions of intestinal obstruction, so frequent in melancholia, may after all be dependent upon some physical condition hindering the passage of the contents of the gastro-intestinal canal—in other words, they may not be delusions at all. A recent autopsy in the Maryland Hospital for the Insane showed the truth of this observation. The case, one of profound hypochondriacal melancholia, which had before admission been diagnosticated as cancer of the stomach, had required feeding nearly constantly for his entire period of residence in the hospital (about three years). There was constant complaint of obstruction of the bowels, although no abnormality could be made out on physical examination. After death the descending colon was found constricted for a distance of six inches to a diameter of not over half an inch. Clouston records an almost exactly similar case.

The mental disturbances—actual insanity, not merely febrile delirium—accompanying or following infectious maladies, structural or nutritional diseases of the eye, ear, heart, lungs, and kidneys, are generally recognized. Among the general public and the medical profession the influence of abnormalities of the sexual organs in producing mental aberrations is also believed in to a considerable extent. Indeed, some of the highest authorities in mental diseases, as Esquirol and Guislain, emphasize the overwhelming influence of the genital organs, especially in women, in the production of insanity. Strangely, however, while physiologists recognize and mpress the great influence of the normal sexual functions upon the

[1] Alienist and Neurologist, October, 1890.

[2] Journal of Nervous and Mental Diseases, September, 1891.

[3] American Journal of Insanity, April, 1892.

[4] Journal of the American Medical Association, March 23, 1889.

mental state of the individual, alienists generally seem disposed to deny any influences to these organs when in a morbid condition. The fact cannot be denied that at the menstrual period all pyschical disturbances are intensified. Maniacs become more disturbed and noisy, epileptics have more frequent and more violent attacks, and melancholiacs are more disposed to depression and suicide at this time. If this is generally admitted, it seems to me very irrational that the influence of abnormal conditions of the genital organs upon psychical processes should be so vehemently denied. It is probable that the prevailing opposition of alienists to the view that psychical disturbances may be dependent upon morbid bodily conditions outside of the brain is due to the general conception that insanity is a disease, whereas, as Tuke insists, "insanity is not a disease. It is a symptom produced by many morbid conditions which may arise primarily in the brain, or secondarily from depraved conditions of the general system." Indeed, this same authority utters this strong reproach to the alienists: "No one will venture to say that the foundations of general and so-called psychiatric medicine are equally firm or established on similar principles. No; the general conception of insanity is on the same level as that of 'the dropsy' a century ago; and its varieties—mania, melancholia, and dementia—are not one whit more pathologically definite than the anasarca, ascites, and hydrothorax of that period, and they must remain so till such time as the subject is studied by the same lights as those which enabled the anatomist and pathologist to break up the generic term dropsy into a series of widely different conditions possessing a common symptom."[1]

So much in the way of explanation and criticism has seemed to me necessary. The temptation to continue in the same line is strong, but two Fellows of this Association, Dr. Charles A. L. Reed and Dr. I. S. Stone, have shown plainly that the majority of American asylum physicians have not been fully alive to the importance of the relations between mental disturbances and disease of the sexual organs in their female patients. It is, however, not alone in our country that the complaint is heard. In Great Britain Robert Barnes, and in Germany Louis Mayer, accuse their psychiatric confrères of similar lack of appreciation. "An insane

[1] British Medical Journal, May 30, 1891.

woman has surely as much right to relief from disease of the ovaries and uterus as a sane woman has," says Barnes; and Mayer laments the neglect of the investigation of the relations between mental and sexual diseases of women in German insane hospitals as an offence to science no less than unjustifiable inhumanity.[1]

So far as this country is concerned, however, the writer thinks he may say the reproach that this class of cases is neglected in our insane hospitals will not be justified much longer. Our Fellow, Dr. Manton, has just preceded me with the relation of no small experience in the hospitals of the State of Michigan. Dr. Alice Bennett, I am informed, has begun the work in the excellent institution over which she presides with such signal ability. All over the country come isolated reports from the officers in charge, showing that the opposition to active surgical interference in appropriate cases of insanity is not only dying out, but that advanced alienists are ready to lend a hand in the prosecution of a work which I am confident will be fraught with advantage to science and humanity.

I am of opinion that much of the opposition heretofore manifested toward gynecological treatment of insane women had its origin in the lack of positive results from most of the manipulative treatment heretofore practised. There can be little doubt that the frequent exposure of the patient and introduction of the speculum, the passage of a sound and attempted forcible reposition of a retroverted and adherent uterus, the introduction of a pessary, or perhaps, worst of all, the practice of that form of vicarious masturbation known as pelvic massage, would lead to results the reverse of beneficial in insane, as they have resulted in sane women. Modern surgery and gynecology, however, offer and produce positive results, principal of which is the relief of suffering. As Barnes well says: "Before the recent advances of gynecology, women, sane and in-

[1] "Es ist bedauerlich, dass man von psychiatrischer Seite, obgleich von Niemandem die grosse ätiologische Bedeutung der Geschlechtssphäre für Geisteskrankheiten des Weibes geleugnet wird, wenig bemüht gewesen ist, diese Verhältnisse in das richtige Licht zu stellen, indem man exacte Untersuchungen der Genitalsphäre theils aus äusseren Rücksichten oder unhaltbaren, moralischen Gründen, theils aus Mangel an der nöthigen Sicherheit und Erfahrung anzustellen unterlassen hat; trotzdem, dass darin sicherlich nicht nur ein Vergehen gegen die Wissenschaft, sondern vor Allem eine nicht zu rechtfertigende Inhumanität liegt, insoferm es in folge davon nicht selten versäumt wird, da Hülfe zu gewähren wo sie noch möglich wäre." (C. E. Louis Mayer: "Die Beziehungen der krankhaften Zustände und Vorgänge in den Sexualorganen des Weibes zu Geistesstörungen," Berlin, 1870, p. 40.)

sane, had to suffer from ills now known to be curable," and there is no excuse why the insane suffering woman should be deprived of the succor offered to her sane sister."

It was at first my intention to give a general summary of the work heretofore done in the field and the results obtained, before giving my own experience. Many of the previously reported cases are, however, negligently recorded, or published too soon after the operation to allow any safe conclusions to be drawn. The criticism may be made against me also that this report is premature; but I regard the subject as too vitally important to permit of longer delay, and present my experience in order that others may be encouraged to continue and extend the work if the results seem to furnish a justification therefor.

Every gynecologist has had within his own experience cases of mild neuroses, persistent pain, psychical depression not amounting to melancholia, "nervousness," hysterical manifestations, etc., which he has found to depend upon some lesion in the pelvic organs; and every Fellow of this Association has, I am confident, given relief to such patients, removing their nervous troubles by appropriate treatment. I venture to say that no form of treatment gave such prompt results in these cases as the surgical, whether that consisted in the ablation of the uterine appendages, the extirpation of the uterus, the repair of a cervical laceration, or the restoration of a ruptured pereineum. At all events, I do not hesitate to say that this has been my own experience with women outside of an insane hospital. But in the following pages I shall confine myself to recording cases that were actually insane, so pronounced after a judicial inquiry or by two competent physicians, and who had been under observation for some time, in some cases for years, in a hospital for the insane. The cases here briefly detailed were selected from an average female population in a hospital of two hundred persons. Of these, thirty-five were subjected to vaginal examination, mostly under anesthesia. The examination consisted of thorough exploration of the pelvic excavation with one or two fingers, or if necessary the whole hand, in the vagina, with the other hand over the abdomen. In most cases this was supplemented by an examination by the rectum. The vaginal speculum was used not over twice, and the sound never, except for the purpose of exploring the bladder. The patient was prepared for examination by a

thorough purgation with Epsom salts the day before the examination, followed in the morning by an enema of Epsom salts and glycerin, a thorough bath, and a vaginal douche. Resistance to the examination was rarely encountered, and anesthesia was employed, not for the purpose of bringing a refractory patient under subjection, but to render the examination more thorough and satisfactory. The cases examined were selected, not because there seemed more evidence of pelvic disease in them than in others, but because they seemed to present more prospect of a successful result to treatment. Imbeciles and dements were not examined, though I have little, if any, doubt they would show as large a proportion of pelvic disease as those that were subjected to examination. Among the thirty-five examined, twenty-six, or 74.3 per cent., showed some evidence of pelvic disease or abnormality. I am confident that at least 50 per cent. of the women in this hospital would show lesions of the genital organs if all were thoroughly examined. In some unexamined cases an autopsy has shown unsuspected pelvic disease. In all cases where sufficiently serious pelvic lesions were found, and where the consent of the legal or natural guardians could be obtained to the operation, the uterine appendages were removed by abdominal section. In some cases supplementary operations, such as repair of lacerated cervix, restoration of the perineum, excision of the vulvo-vaginal gland, and dilatation of the urethra, were performed. Believing that a diseased, adherent, or compressed ovary caused more persistent and graver trouble than a lacerated cervix, a torn perineum, or an irritability of the bladder, I considered it my duty to give my first attention to that. I chose the radical operation of removal of the organ because, in addition to going at once to the fountain-head of the local mischief, I at the same time rendered the woman sterile and incapable of propagating defective offspring. Whether in doing this I have assumed a responsibility beyond the proper limit or not must be left to the decision of the profession and the public. Inasmuch, however, as in the majority of my cases the lesions of the ovaries and tubes were sufficient of themselves to demand removal, the other question referred to may be considered as a merely hypothetical one, not relevant in the present consideration.

The cases were prepared for operation by a thorough purgation with Epsom salts the day before the operation; a thorough scrub-

bing was given the day before, and repeated on the morning of the operating-day. Immediately before the patient was anesthetized she received an enema of one ounce of Epsom salts, two ounces of glycerin, and sufficient water to make four ounces. After this had acted the vagina was washed out with clean warm water. The anesthetic used in all cases was the alcohol-chloroform-ether mixture, and an assistant was charged with the sole duty of its administration. The Trendelenburg posture was always used, and I am more than ever convinced of its superiority over the extended dorsal position. After the patient was placed upon the table the abdomen was well scrubbed with a nail-brush and soap and hot (distilled) water and the pubes and lower portion of the abdomen shaved. The operation field was then thoroughly washed with soap and water and dried with a sterilized towel. Latterly I have used a solution of sodium hypochlorite as an additional aid to asepsis, but have not seen any advantages from its use.

All instruments, dressings, ligatures, sutures, brushes, operating gowns, etc., except sponges, used about the operation, were subjected immediately before the operation to steam under slight pressure for twenty to thirty minutes. The temperature reached by the steam is probably 220° F. Sponges were thoroughly washed in an alkaline solution, several times in hot water, and then kept in a solution of mercuric chloride 1 : 500 ; before use they were thorougly washed out in hot distilled water. All the water used is distilled, and is readily obtained by tapping the return pipe carrying the condensed steam to the boiler-house. As a sterilizer one of the laundry tubs, fitted with a steam-pipe perforated, is used, and gives thorough satisfaction. The suture material used in all cases was silkworm-gut, except where intestinal coats were injured, when fine silk was used. Strong cable-twist silk was used to ligate pedicles. The suture of the abdominal wall was made by transfixing the entire thickness of the wall—skin, connective tissue, fascia, muscle, and peritoneum. Where necessary, superficial sutures were used to secure perfect apposition. The wound was dressed, after suture, with iodoform, iodoform gauze, absorbent cotton, and a tailed flannel bandage. Unless displaced by the movements of the patient, the bandage was not disturbed until the seventh or eighth day, when it was removed, the stitches taken out, and the line of incision again dressed with iodoform, a narrow strip of

iodoform gauze, and adhesive plaster. In some cases the abdomen was irrigated with warm distilled water, while in others the cavity was simply sponged dry. No drainage was used in any case, although I believe two cases would have been saved had it been employed. The after-treatment consisted in keeping the patients quiet and withholding food and drink until all nausea had subsided. On the second day a little tea was tried, and, if it caused no nausea, was followed by beef-tea, and this, in a day, with milk, milk toast, chicken soup, and so on gradually to roast beef, beef steak, and mutton chops until the regular hospital fare could be taken and digested. On the third day, or earlier if there were any indications of fever, an Epsom salts and glycerin enema was given, followed usually by several doses of Epsom salts until the bowels were well cleared. After the second day no restraint was placed upon the movements of the patient, except that she was not allowed to get out of bed. In some of the earlier cases where great restlessness was manifested, the patients were kept on their backs by a broad band of strong muslin drawn across the knees and fastened to the sides of the bed, and in a few cases the ankles were fastened by a muslin strap and padded leather anklet. More experience in managing the patients has enabled us to dispense with all restraints, even in the most obstinate cases. Two gentle and experienced attendants can easily keep in bed the most obstreperous patient by the exercise of a little tact. In this place I gladly take occasion to express my many obligations to the liberality and encouragement of the Board of Managers of the institution intrusted to their care by the Commonwealth, and to the intelligent assistance rendered in the management of these cases by my former assistant physicians, Drs. B. D. Evans and Wm. L. Robins, and my present efficient house staff, Drs. J. Percy Wade, M. D. Norris, Fred. Caruthers, and J. H. Scally. No less are my obligations to the intelligence and self-sacrifice of my nurses and attendants, who have taken a personal interest in every case, and by their care, gentleness, and endurance have rendered this work possible.

I have classified the cases according to the clinical form of mental disturbance present. The total number of cases operated upon is eighteen, of which six were melancholia, one simple mania, four puerperal mania, one hysterical mania, two periodic mania, one hystero-epilepsy with mania, and three epilepsy.

MELANCHOLIA (SIX CASES).

The first two cases belong to the class known to alienists as melancholia attonita, or melancholia with stupor. T. Claye Shaw states that mental stupor is frequently connected with genital irritation, and is more frequent in women. The first case resembled in many of its features the condition first described by Kahlbaum under the name katatonia. The second is one which I am uncertain about placing in this category, but the suicidal tendency seems to indicate its location among the melancholias. The third case is one of decided hallucinations of hearing, with imperative impulses to use profane and obscene language—a phase of the *Zwangsvorstellungen* of the Germans, to which Charcot and Magnan have applied the term "onomatomanie." The fourth case was one of strongly suicidal tendency, one attempt being made before admission, and two since her residence in the hospital. The fifth case was one of profound depression with delusions of impending death. In this case the ovaries were atrophied to an extreme degree, although the menopause was not yet established. The sixth case is too recent to permit any opinion of the ultimate result, although her present condition is decidedly encouraging. In all the cases of melancholia operated on considerable improvement has followed. None of the cases have improved sufficiently, however, to justify discharge as cured. Bantock has reported a case in which removal of the appendages was followed by cure of melancholia; Marion Sims had recommended the operation in this case. A case is also reported by Bircher in which recovery from melancholia followed extirpation of cystic ovaries.

CASE I.—Mrs. L. A. B., aged thirty-two years, white, has been married for ten years and had ten children. The family history is bad; the patient's mother at one time suffered from an attack of melancholia, and one sister was insane. Admitted to the Maryland Hospital for the Insane, suffering from great depression; refused to work or eat, was as helpless as a child, and had to be dressed and undressed; if placed in a chair would remain unless removed. She had well-marked suicidal tendencies, and twice attempted suicide before admission—once by means of a knife, and again by drowning. During her menstrual periods she exhibited great restlessness, wandering from one room to another and to the windows. She was also very obstinate, resisting

food and efforts to change her clothing. Upon vaginal examination the cervix was found moderately torn; no induration in the pelvis. Operated on October 13, 1891, on the third day of her menstrual periods, under the usual aseptic precautions. Ovaries and tubes removed. No adhesions. Small hematoma from ruptured follicle in one ovary. There was no hemorrhage. No irrigation or drainage was used. Patient did well after the operation; the sutures were removed on the seventh day, and the wound had united by first intention. She has shown some slight improvement since the operation. Although she is still depressed and refuses to talk, she will often brighten up and smile, occasionally dressing herself. When her children visit her she recognizes and shows affection for them. Her physical condition, which at the time of the operation was extremely bad, has greatly improved.

Case II.—M. K., aged twenty-four years, white, single. Family history bad, her father being an epileptic. Admitted to the Maryland Hospital for the Insane October 22, 1888. Had then been insane for three months. For two years previous to insanity she was depressed and did many strange things. When admitted she was greatly depressed, refused to talk during the day, but at night talked continuously, much to the annoyance of other patients. She refused to answer questions. She worked in the sewing-room and attended the dances, but no inducement could make her speak. There were well-marked suicidal tendencies, and she twice attempted suicide before admission—once by drowning, and again by cutting her throat with scissors. Vaginal examination showed no appreciable morbid conditions of the pelvic viscera. In spite of this negative result, however, removal of the appendages was decided upon, and the operation performed January 19, 1892. The right ovary was found to be cystic and the tube congested and tortuous. Usual aseptic precautions. No irrigation or drainage. Patient recovered rapidly from the operation, and the sutures were removed on the eighth day. The wound had united by first intention. There has been some improvement since the operation; the depression is not so great, and, although she will not talk, she brightens up and smiles when spoken to, works, and attends the dances regularly. When her friends come to see her she talks pleasantly to them—a thing which she never did before. The suicidal tendencies have disappeared.

While the improvement has not been marked in this case, the patient is still on trial, and further favorable changes, may, I think, be looked for.

Case III.—M. T., white, single, aged thirty-one years. No history of insanity in the family. Previous to her mental trouble she was quiet, amiable, and industrious. In 1885 she had an attack of what her physician termed "nervousness." In March, 1891, she was admitted to the Maryland Hospital for the Insane. She was greatly depressed, and had lost interest in her home and surroundings. She suffered from hallucinations of hearing and the peculiar symptoms described by Charcot and Magnan as "onomatomanie." She hears obscene and vulgar language, and has an almost uncontrollable desire to repeat it. There were no suicidal tendencies. She slept very badly except through the aid of an hypnotic. Her health was much below par, but under tonic treatment it improved somewhat. Vaginal examination revealed enlarged and tender ovaries. Operation performed November 4, 1891. Tubes and ovaries on both sides—the latter were much enlarged—were removed under strict asepsis. No irrigation or drainage. She recovered rapidly from the operation, and on the eighth day the sutures were removed and the wound was entirely healed. The patient improved considerably after the operation. She became cheerful, interested herself in light work, and talked pleasantly with the other patients. The hallucinations of hearing and onomatomania, although they did not entirely disappear, decreased to a considerable degree. She has written several letters home, whereas before the operation she could not concentrate her thoughts sufficiently to do so. Her general health also improved. This improvement continued for about five months, and the time of her discharge had already been fixed, when she was attacked by dyspeptic symptoms, lost appetite, had almost constant nausea and vomiting, and lost considerable flesh. With the decrease in her physical health her mental depression returned. A thorough examination of the lungs and heart, and a chemical and microscopical examination of her urine, failed to show any cause for the gastric derangement. The stomach was washed out and showed hyperacidity of the gastric secretion. She was then placed upon Parke, Davis, & Co.'s hemoglobin compound for several days, and gradually carried on to milk and other diet. At the time of writing her physical condition is again slowly improving, the digestion is fairly good, she is gaining in weight, and coincidently her mental depression is gradually becoming less marked. The imaginary voice in her head and chest, however, continues to trouble her, and is doubtless responsible for much of her depression.

Case IV.—Mrs. H. M. S., aged thirty years, white, has been married for eight years and given birth to two children. Hereditary taint in family denied. Previous to insanity she was industrious, and of a

lively, cheerful disposition. Admitted to the Maryland Hospital for the Insane October 5, 1891, suffering from melancholia. Depression very great, loss of affection for her husband and children, restless, walking the floor, crying all day, and rarely talking. Suicidal tendencies marked and active, having attempted suicide by jumping from a window before admission. She did not want to live, and repeatedly begged her friends and relatives to kill her. Her catamenial flow had been irregular during the last year, the periods following each other within two or three weeks. Physical condition in a very fair state. Upon vaginal examination the following conditions were found to exist: a lacerated cervix uteri and evidences of a bound ovary on the right side. Abdominal section done on November 4, 1891, with removal of both uterine appendages. Strict asepsis. The right ovary was firmly bound down, and the tube on the same side tortuous and congested. Left ovary not congested or adherent. There was some hemorrhage, caused by the breaking-up of adhesions, and the abdominal cavity was thoroughly flushed out with warm distilled water. No drainage. Patient recovered promptly from the operation, the temperature not going above 100° after the second day. Stitches removed on the seventh day, and the wound found firmly united. Three weeks subsequent to the operation, after a visit from some friends, she became very much depressed, and asked everyone that came in the ward to kill her. At first she wanted to be shot, then she wanted me to bring a saw and saw her head off, and finally she expressed a wish to be thrown into a dungeon and left alone to die. She slept fairly well, but early in the morning her moans and requests to be killed were most distressing. During this period she made two attempts at self-destruction, which were frustrated by the watchfulness of the attendants. Bromide of potassium and chloral with cannabis indica, in large doses, failed to quiet her. Finally, under opium in large doses, she became quieted and now passed into a cataleptic state. She would stand for an hour in the same position, staring in front of her and taking notice of nothing passing around her. She ate poorly and lost flesh. After a time she gradually came out of this depression and began eating and sleeping very well. At the present writing, September 10, 1892, she is quiet and cheerful, but not very talkative. She assists the attendants in the ward and in the dining-room, plays croquet, goes to the chapel and the dances, has gained about twenty pounds in flesh, and has apparently lost all tendency to suicide.

Case V.—E. W., aged forty-three years, white, single. Family history bad, one sister being insane. Admitted to the Maryland Hospital for the Insane February 22, 1892, suffering from melancholia.

Very much depressed; refused to talk or go out in the grounds. She spent her time in crying and bemoaning her fate. She repeatedly asked to be allowed to die, saying she was unfit to live. On one or two occasions she refused to eat, but had no delusions in regard to her food. Her menstrual flow had been irregular for some time, occurring often not more than once in three months. Vaginal examination showed nothing abnormal about the genitals. Operated on April 20, 1892. Both ovaries were found to be greatly atrophied, and the tubes congested and tortuous. No irrigation or drainage. She recovered nicely from the operation, the temperature not going above 100° F. Sutures were removed on the eighth day, and the wound found perfectly united. Her improvement has gone on slowly but steadily since the operation. The depression is not so great; she is bright and fairly cheerful, talks with the other patients, goes out on the lawn and to the dances, and never expresses a desire to die as she did formerly. She also does some light work about the ward.

Case VI.—Mrs. S. G., white, aged thirty-two years, widow. She was married when eighteen years old, and has had four children, the last two being twins, born in 1885. Family history not good; two uncles on her father's side were insane. Her disposition has always been a despondent and a gloomy one, not caring about society. She has suffered from uterine trouble for several years. Five years ago she consulted one of the most eminent gynecologists in Philadelphia, who advised removal of the ovaries. Not being willing for this, she consulted an equally eminent neurologist in the same city, who expressed decided opposition to the operation, and treated her for some time in his private hospital. No improvement following, she was taken home, and a year later consulted a noted Baltimore gynecologist, who advised trachelorrhaphy, which was afterward done in one of the hospitals of that city. I may mention, *en parenthèse*, that another local authority, appealed to in the interim, suggested marriage as a remedy in her case, as no local lesion was found by him to exist. The repair of the cervical tear had no good effect, and she was admitted to the Maryland Hospital for the Insane May 14, 1892. Two years prior to her admission she showed signs of melancholia, became depressed and low-spirited, talked little, and avoided her friends, but under tonic treatment she improved somewhat. About three months ago, during her menstrual period, she complained of pain in her head, became depressed, morose, disagreeable, and irritable; would have nothing to do with her parents, who, she said, mistreated her. She heard voices speaking to her and telling her to do certain things; she talked a great deal about her husband (who died three years ago) and children. She was

obstinate, and when she determined on any action no argument could change her. She got up at all hours of the night, and would dress herself, saying she could not remain at home. When admitted she was somewhat depressed and irritable, sleeping very badly at night. There are no suicidal tendencies, but her conversation is rather strange. She says God directs her to do certain things, and she must obey. She has delusions of persecution, and especially that her father is mistreating her and depriving her of comforts which are hers of right. She writes a great deal, but there is little sense in her letters. She is always morose, disagreeable, and peculiar in her actions during her menstrual periods. For a while she improved a great deal, became amiable, associated with the other patients, and the delusions to some extent disappeared. During July she became worse, and relapsed into her old condition. Upon vaginal examination the uterus was found enlarged, with tenderness over the ovaries. Operated on August 30, 1892. Right ovary was much enlarged and cystic. Left ovary enlarged and contained about two drachms of blood. No irrigation or drainage. She recovered rapidly from the operation, and the sutures were removed on the seventh day. Wound had united kindly. Although it is too soon to look for decided results to follow the operation, nevertheless she is pleasant and agreeable, and talks encouragingly about herself and her recovery. She has been easy to manage, and has done everything to assist the nurses in performing their duty.

I have classed this case among the melancholias from the most marked symptom present, although the case is probably one of paranoia.

SIMPLE MANIA (ONE CASE).

In this case there seemed to be decided connection between the uterine displacement and the mental aberration. The patient since the operation has shown decided improvement in her mental condition, although she is not yet well enough to be discharged from the hospital.

CASE VII.—M. S., aged twenty-nine years, white, single. Insanity in the family denied. Before the onset of insanity the patient was amiable, lively, affectionate, and industrious. Admitted to the Maryland Hospital for the Insane October 12, 1891, having been insane one year previous to admission. She was disagreeable, at times depressed, and at others would become violent, strike at her friends, break furniture, while her language was both obscene and incoherent.

She repeatedly soiled herself and her bedding, and had to be dressed and undressed. In her appearance she was rather slovenly. She was always worse during her menstrual flow, and during the intervals between the flow behaved fairly well, her language at that time being much better and her temper more even. Vaginal examination showed a retroflexion of the uterus with adhesions. This condition had already been discovered by the family physician, Dr. J. McPherson Scott, of Hagerstown, who not only agreed to but strongly advised removal of the appendages, and subsequently lent me his valuable counsel and assistance at the operation. Operation performed November 19, 1891, with the usual aseptic precautions. Right ovary not adherent. Left ovary bound down and had to be torn away from the adhesions. There being some bleeding in the cavity from the adhesions, it was flushed out with warm distilled water. No drainage. The patient recovered from the operation without one bad symptom, and the sutures were removed on the seventh day. The wound had united perfectly. There has been marked improvement in her case. She is cheerful, amiable, sleeps in the dormitory with the other patients, and has had no maniacal outbreaks since the operation. Does not soil herself and is much neater in her dress. She answers questions fairly well and talks with considerable intelligence. Although her language is sometimes larded with vulgar words, it is only exceptionally so, and she is never obscene. Her physical condition has improved, and it is hoped that her mental restoration will be complete in time.

PUERPERAL MANIA (FOUR CASES).

In all four of these cases there were lesions of the pelvic viscera sufficient to demand the operation. In the case of F. L. C., one of the ovaries was enlarged and displaced. In reference to this case I may be allowed to quote the opinion of Dr. Robert Barnes: "Occasionally one ovary sinks down in Douglas's pouch, getting below the level of the uterus. Severe symptoms follow, and have been relieved by maintaining the ovary in its proper place or by removing it." Expedients for "maintaining the ovary in its proper place" seemed to me too uncertain in results to waste time upon them, and I decided to remove the organs. The operation was followed by prompt and complete recovery. In the first report of these cases[1] I venture to point out the almost constant relation

[1] Journal of the American Medical Association, July 16, 1892.

between preceding or coincident puerperal infection and the class of cases of mental aberration usually termed puerperal mania. I take the liberty of here quoting the conclusions of that report:

"1. Puerperal insanity is, in at least the large majority of cases, an infection psychosis.

"2. Without rejecting the influence of other factors, such as heredity, anemia, exhaustion, mental shock and distress, careful observation will show that few cases of puerperal insanity occur without preceding or coincident puerperal infection.

"The reasons for this opinion may be briefly summed up as follows:

"1. Puerperal insanity occurs in the great majority of cases within the first ten days after delivery—about one-half in the first five days—the same period during which puerperal infection usually occurs.

"2. It is usually accompanied by elevation of temperature and other evidences of febrile disturbance.

"3. The clinical form in which puerperal insanity manifests itself is, in the majority of cases, that of acute, delirious, or confusional mania. Depressive states are rare except as secondary forms. In other words, the most frequent condition is one most closely resembling febrile delirium.

"4. The death-rate is much higher than in simple mania. Death occurs from exhaustion, usually with high temperature and rapid pulse.

"5. Post-mortem examinations, though apparently infrequent in these cases, have shown grave involvement of the pelvic viscera.

"6. Examinations of the pelvic organs during life show lacerations of the perineum and cervix uteri (facile channels of infection in the puerperal woman). As secondary conditions are found intra-pelvic (peritoneal) inflammations, and consequent abnormal locations, fixations, and congestions of the uterus, tubes, and ovaries.

"7. The results of operations seem to show that removal of local sources of irritation increases the chance of recovery from the mental disease."

As sustaining these propositions I may quote the opinion of Drs. J. Batty Tuke and G. Sims Woodhead, in Tuke's *Dictionary of Psychological Medicine*, vol. ii. page 911: "There is strong reason for believing that in puerperal insanity a considerable proportion

of cases is due to toxic influences. It must be remembered that although a woman may become insane during the puerperal period, her case need not be referable primarily to childbirth. Mental symptoms may be, in point of fact, idiopathic—*i. e.*, the result of so-called normal causes—the effect of which, culminating at the birth of her child, show themselves some three weeks or a month later by an attack of simple mania or melancholia. But the violent delirious mania which is apt to develop within fifteen days after delivery has all the aspect of being due to toxic influence. Its sudden inception, delirious character, rapid development, inflammatory complications, and tendency to death, are eminently suggestive of septic origin. Such cases rarely present themselves later than a fortnight after childbirth (the period during which septic changes go on in the uterus), and more frequently within ten days. Absorption from the uterine surface of disorganized material and blood, acting on a system which has been already subjected to considerable drain, exercise its influence on the most highly organized cells, and acute, violent mania, temporary in character but followed by prolonged brain weakness, is the result."

Case VIII.[1]—Mrs. A. T., white, aged thirty-three years, has been twice married, first at the age of seventeen years. Of this marriage one child was born. Her husband died two and one-half years after, and, after remaining a widow four and one-half years, she married her present husband, who is a minister. There is no family history of insanity. In 1882, three days after the birth of her second child, she had an attack of puerperal insanity, maniacal in character, which lasted five months. She remained well until October, 1886, and was then again attacked with acute mania. After this had continued ten weeks she was admitted to the Maryland Hospital for the Insane. She was very much excited, violent toward her husband and others with whom she came in contact. She was extremely obscene and profane, irritable, morose, and disposed to fight on the least provocation. She soiled her clothing, bed, and room, and was a source of great trouble to the attendants. A pleasant "Good morning," addressed to her by the physician on passing through the ward, was generally the signal for a volley of obscenity and profanity. She sometimes acted as if she had

[1] Before reported in the author's paper on "The Influence of Parturient Lesions of the Uterus and Vagina in the Causation of Puerperal Insanity," Journal of the American Medical Association, July 16, 1892.

hallucinations of hearing, but on account of her ill-temper no clear history of hallucinations or delusions could be obtained. She did not improve, but showed a progressive tendency toward dementia. Her menstrual periods were attended by an exacerbation of symptoms. She was always more violent at her periods. An examination was made of the pelvic organs last September, and the following conditions found to exist: The perineum was torn down to the sphincter ani, causing the vulvar opening to gape widely. The cervix uteri was lacerated to the vaginal insertion on the left side and to a lesser degree on the right. There was decided intra-pelvic induration on the left side of the uterus. Believing that these unfavorable conditions, together with the evident unfavorable influence of the menstrual periods, justified the induction of the menopause, I removed the uterine appendages on October 6, 1891. The operation was performed under aseptic conditions. No chemical antiseptics or disinfectants were used. No drainage. The right ovary was cystic and firmly adherent in Douglas's cul-de-sac. Left tube tortuous and broad ligament thickened and congested. The abdominal cavity was irrigated until the water returned clear. Five deep and two superficial silkworm-gut sutures were employed to close the incision. Patient recovered well from the operation. Sutures were all removed on the seventh day and the wound found firmly united. Two months after the operation the patient had shown considerable mental improvement. She began to take an interest in books, pictures, flowers, etc. While her attempts at conversation were disconnected, she dwelt more on pleasant themes, and her former violence of speech had almost entirely left her. After Christmas she began writing letters to her husband, making inquiries as to her children and expressing much affection for them. This she had not done for over five years. She continued to improve up to a certain point, and at her husband's visits she received him affectionately but quietly. While memory of past events and love for her husband and children seemed to return gradually, there was still a lack of co-ordination of thought, and this has not further improved. The brain disorganization (physical basis of dementia) had probably progressed too far to be restored even approximately to the normal. At the time of writing, ten months after the removal of the appendages, the patient is quiet and cheerful, although relapsing into profanity when irritated. She no longer fights and rarely soils her bedding, room, or clothing. She dresses and undresses herself, makes her bed, sweeps her room, and waters the flowers and plants in the ward. She is not restored mentally, probably never will be—indeed, is most likely, I think, to pass deeper into dementia. But from a violent, excited,

noisy, and dirty patient she has improved so much as to allow her to be kept in the quietest ward in the hospital; and this gain may, I think, be largely, if not entirely, ascribed to the removal of the uterine appendages. I may say that I subsequently sewed up the lacerated cervix and restored the vaginal outlet by Emmet's procedure, without any appreciable effect upon the patient's mental condition.

Case IX.[1]—Caroline A., white, aged thirty-nine years, married fifteen years, and the mother of seven children. Last child was born in April, 1887, four months before her admission to the hospital. No history of insanity in the family. Four weeks after the birth of her last child she suddenly developed delusions of persecution—claimed that someone was after her and trying to kill her. Her language became very profane and vulgar. She at one time made a violent attack upon her mother. She was one of the most troublesome and destructive patients in the hospital. She would strip herself in the ward, attack the attendants and the other patients, use the most obscene language, break the furniture, dig the plaster out of the wall of her room, soil her clothes, bed, and room, jump at and hug any man coming within her reach, and make herself generally disagreeable to her surroundings. She was always worse during her menstrual periods, and at these times was kept secluded in her room on account of her tendency to strip herself. Vaginal examination showed a moderate perineal tear, but a deep bilateral laceration with eversion and erosion of the cervix, and enlarged uterus; pelvic induration of moderate degree in Douglas's cul-de sac. Abdominal section with removal of the uterine appendages was done on December 15, 1891. Tubes on both sides were thickened, congested, and convoluted. Left ovary adherent. Small cyst in left broad ligament. No irrigation. No drainage. Patient recovered well from the operation, and sutures removed on the seventh day. Incision firmly united. The patient seems to be slowly recovering a part of her mental faculties. She has become cleanly in habits and no longer indulges in her former vulgarity. The day before this present writing she received a visit from two of her children, and met them with every demonstration of affection. Her conversation is not connected, but it is now neither violent nor offensive. She sleeps in a dormitory with six other patients, eats in the ward dining-room, keeps herself neat and clean, and is industrious in the use of the needle. Barring the non-restoration of her mental faculties, there has been a complete transformation in the habits, acts, and speech of this patient.

[1] Before reported; see note to Case VIII.

CASE X.[1]—Mrs. F. L. C., aged twenty-eight years; white; married, and mother of three children. No hereditary history of insanity. Eight days after the birth of her first child she became insane, the mental disturbance lasting two weeks. Seven months after the birth of her second child she had another attack, which lasted fifteen months. A third attack began a year after the birth of her last child. Three days after this outbreak (on December 28, 1891) she was admitted to the Maryland Hospital for the Insane. She was excited but very weak. Her language was shocking in its profanity and obscenity. Sexual excitement was pronounced. For several weeks her pulse was so weak and rapid that at times her life was despaired of. She was kept in bed and fed every two hours with milk, eggs, and brandy. Digitalis was given to keep up the force of the heart. Her mental condition did not show any signs of improvement upon returning strength. An examination under anesthesia disclosed a deeply ruptured perineum with gaping vaginal entrance, lacerated cervix, with prolapse of the right ovary. On March 9, 1892, the uterine appendages were removed. No adhesions were found. Both ovaries were very much enlarged, being at least three times the normal size. No irrigation. No drainage. On the day previous to the operation the patient was cross, obscene and profane in her language. Within two hours after the operation, as I entered her room, she burst into tears, asked me to forgive her for the ugly language she had used toward me and the assistant physicians and attendants, and acted in an entirely rational manner. She recovered well from the effects of the operation, but on the eighth day after the operation, and the day after removal of the sutures, the evening temperature ran up to 102.4° F., and on examination a mural abscess was discovered, which discharged freely through the stitch-holes for about two weeks. In spite of this, however, her progress toward recovery, both physical and mental, was uninterrupted, and she was discharged well on May 8, two months after the operation.

CASE XI.[2]—M. L. B., aged thirty-seven years; white; married thirteen years, and mother of six children, the youngest four months old at the time of her admission to the hospital. The family history is bad, mother being at one time insane and father very intemperate. She was admitted to the hospital May 16, 1890. She had one previous attack of insanity ten years before the present attack, but it is not certain whether it was connected with the birth of any of her

[1] Before reported; see note to Case VIII.

[2] Before reported; see note to Case VIII.

children. She had delusions and hallucinations. She was never violent, but was talkative, exalted, and would strip herself in the ward. She was very much run down when brought to the hospital, and gained strength very slowly under stimulants and nutritious diet. During her menstrual periods she became exalted and evidently had increase of sexual excitement. Her face was flushed, and she would try to get near to and touch the physician passing through the ward.

At other times she was quiet and unobtrusive, but evidently under the influence of her delusions. Examination disclosed bilateral laceration of the cervix, with thickening of the posterior lip. There was an inflammatory induration on the left side of the uterus, which was very sensitive to pressure. On November 25, 1891, the uterine appendages were removed. Left ovary adherent and tube thickened and convoluted. Irrigation. No drainage. Patient recovered without a bad symptom. Stitches removed on the seventh day and incision found firmly united. In this patient delusions of personality continued for several weeks after the operation, but gradually faded away. Her conversation became connected and rational, and in two months after the operation her mental faculties seemed to be completely restored. Her climacteric symptoms, headache, backache, constipation, and nervousness, were especially severe, but at this writing, over six months after the operation, their severity is lessened, and she is more comfortable. Her mental condition is completely restored to the normal. On August 21, 1892, she was discharged from the hospital, recovered.

HYSTERICAL MANIA (ONE CASE).

There may be some doubt as to the propriety of speaking of hysterical mania as a distinct form, but modern alienists do not hesitate to give it a special place. Dr. Conolly Norman, in Tuke's *Dictionary*, has an excellent article upon the subject, and Tomlinson[1] describes six well-marked cases. In the case here reported, the nervous and psychical symptoms had a material substratum in the intra-pelvic adhesions. Shortly after the operation the patient seemed on a fair way to complete recovery, but she subsequently relapsed. At present her mental state is about the same as before the operation, but her physical condition is much improved.

CASE XII.—H. V. McN., aged thirty-nine years; white; single; admitted to the Maryland Hospital for the Insane, in February, 1890,

[1] Journal Nervous and Mental Disease, April, 1891.

having been insane three months prior to admission. The cause of the attack was said to be financial and domestic troubles. She was treated at another hospital, some time before admission, for uterine trouble. Family history good. The prominent features of the attack were that she destroyed her clothing, had no appetite, slept but little, and tried to go about at night. Had no illusion, delusion, or hallucination; no suicidal tendencies. She was thoroughly hysterical and refused to walk. Although nothing was apparently wrong with her limbs, she would not even stand on her feet. She was very despondent and said she would never be able to walk again. She exaggerated every ache and pain, and insisted that she would die. During the spring of 1891 she developed certain peculiar trophic symptoms. The mucous membrane of the tongue exfoliated daily in large flakes. This finally became so aggravated that she was unable to take solid food, and could retain nothing except the smallest quantity of food at a time. Over her body bluish, bruise-like spots appeared, similar to those described by Charcot, Pitres, and other French observers in hysterical subjects. At first I suspected the patient of having produced the spots and exfoliations herself, but, after careful watching for some time, failed to discover their source. She became so emaciated and weak that I feared she would die of inanition. Finally, after trying various articles of diet, I put her on Parke, Davis & Co.'s hemoglobin compound, beginning with ten-drop doses every half-hour and gradually increasing to teaspoonful doses. In a week the stomach became steady, the exfoliations of the tongue and the production of discolorations ceased, and she was gradually brought up to the regular diet of the hospital. She suffered from an intense leucorrhea, with pain in the back and ovarian regions, especially the right. Menstrual periods very irregular, sometimes appearing three or four times a month and lasting four or five days. Upon vaginal examination the uterus was found actually anteflexed, ovary on the right side very much enlarged and bound down. Left ovary not adherent. Although the patient was still very weak, abdominal section was determined upon, and performed October 22, 1891, with the proper aseptic precautions. Left ovary and tube were not adherent. Right ovary firmly united to the intestines and pelvic wall, and with great difficulty shelled out from the adhesions. This ovary was found to be very much enlarged and flattened, and there was a small hematoma in the tube. There was considerable hemorrhage into the abdominal cavity, and irrigation with sterilized water was freely used. No drainage. After the operation she was in shock for two hours, but finally rallied under tincture of digitalis and nitrite of amyl. Pulse before the operation, 120. She recovered from the

operation slowly, and her pulse ranged from 100 to 138, and required to be stimulated with digitalis and nutritious diet. For two months after the operation her condition was very encouraging. She was bright, pleasant, and hopeful of her ultimate recovery. She would sit up during the day, and made the attempt to walk several times, without success. She was taken in her chair on the lawn, and seemed delighted to be in the open air again. Her general health improved; there was no return of the exfoliation of the mucous membrane or the blue spots. Her pulse was stronger and not so rapid. Her appetite increased, and she rested more comfortably at night. In January, 1892, she had an attack of depression which lasted two months. During this stage of despondency she refused to speak to anyone, even her most intimate friends, and seemed frightened when anyone entered her room. She cried a great deal and seemed to be suffering great mental pain. After the depression subsided she gave quite a graphic description of her feelings; said she thought everyone who entered her room had come to kill her and dissect her before death. She heard all sorts of sounds and voices speaking to her, which deprived her of sleep at night. She is now fairly cheerful and contented, but still complains of her physical ills; talks very pleasantly, but refuses to get out of bed or make an attempt to walk. While in this case no permanent mental benefit has yet resulted, the morbid condition of the genital organs fully justified the operation. Her physical condition is much better than before the removal of the appendages.

PERIODIC MANIA (TWO CASES).

In one of the cases there has been some mental change for the better. Both cases are too recent, however, to hazard any prognosis regarding the mental state.

CASE XIII.—N. B., white; single; aged thirty-five years. There is no insanity in the family, but her parents are distantly related. As a child she was erratic and peculiar in her disposition, and when she reached near her majority became very wild and unmanageable, and was committed to an institution for incorrigible girls, where she remained nineteen months. Admitted to the Maryland Hospital for the Insane in 1882, although the mental aberration was noticed two years before admission. While here she has had periods of depression, which occur at irregular intervals and last from two weeks to two months. During this time she is morose and extremely disagreeable, abusing everyone who ventures near her. Her language at such times is

vulgar and obscene. She makes all sorts of untrue accusations against the doctors and attendants, and never goes out of her room or associates with the other patients. After these attacks pass off she again takes an interest in her surroundings, attends the dances and church, and is amiable, cheerful, pleasant, and polite. Her menstrual periods have always been regular, and vaginal examination revealed nothing of special interest. Operated on July 19, 1892. Abdomen washed externally with a solution of chlorinated soda. Right ovary normal, left cystic. No flushing or drainage. Patient recovered rapidly from the operation, and was sitting up on the tenth day. Sutures were removed on the seventh day, and the wound found united by first intention. Since operation she has not had an attack of depression, but has been rather pleasant and agreeable. No definite improvement so far has resulted from the operation.

Case XIV.—Mrs. L. A. P. S., aged thirty years, was admitted to the Maryland Hospital for the Insane, June 7, 1892. She has been married ten years and has had two children, the last being a miscarriage about seven years ago. Family history is not very good, her aunt on father's side and uncle on mother's side being erratic; and although her mother is not insane, she is rather high-tempered and irritable. Her disposition was very amiable and cheerful, and her habits were ambitious and industrious. Insanity was first noticed about five years ago. She became depressed and despondent, and in a short time had a maniacal outbreak, tore her clothes, broke furniture, and threatened the life of the members of the family. These attacks always occur at the menstrual period, and between the periods she is much better and comparatively quiet. She has delusions that the members of her family are her enemies. Her menstrual periods are irregular and the flow is scanty. Since admission to the hospital she beats herself and is not very cleanly in her habits. On vaginal examination the vagina was found dilated, slight laceration of the cervix, uterus retroflexed, and tenderness on pressure over the left ovary, but no enlargement could be made out. Abdominal section was performed September 12, 1892. with the usual aseptic precautions. The ovaries were found cystic, No adhesions. No irrigation. No drainage. The recovery from the operation was without notable incident. At the time of writing no change in her mental condition can be noticed.

HYSTERO-EPILEPSY WITH MANIA (ONE CASE).

This case is a marked example of the benefit to be derived from operative interference in appropriate cases. Cases of hystero-

epilepsy have always been regarded by the advocates of the removal of the appendages as suitable cases for the operation. The cases in which brilliant success has followed the operation are too numerous to quote. In the majority of cases the recovery has been not only prompt but permanent. In the single case here reported the contrast is offered of a young woman who for seven years disturbed the hospital about one week in every month by the violence of her actions. The destruction of property and waste of time of attendants and physicians during that time can hardly be estimated. Yet within six months from the time of operation this woman goes out into the world earning her own living—no longer a maniac, but a reasoning and reasonable being; no longer a burden upon the public, but a producer; no longer a defective component, but an integral part of the body politic.

Case XV.—M. H., colored, aged thirty-three years. She was married when twelve years old, and had one child eight years ago. No information could be obtained as to her family history. She was admitted to the Maryland Hospital for the Insane, March 30, 1885, and about one month after admission had a miscarriage. Her menstrual flow appeared soon after, and continued perfectly regular. With nearly each menstrual period she had convulsive attacks which simulated, if they were not, hystero-epilepsy, followed by maniacal outbreaks. During these paroxysms the patient was very wild and destructive, fighting the attendants and other patients, breaking glass, destroying furniture, doors, etc. She was considered during these attacks the most troublesome patient in the house, and could knock a panel out of an ordinary-sized door at one blow. These paroxysms, as a rule, occurred during the catamenia; but occasionally between the periods, through jealousy or ill-temper, she would have a similar attack. During the intervals she was quiet, amiable, conversing pleasantly and rationally, and did light work about the ward. With the hope of warding off or lessening the frequency of the attacks she was given steady and active employment, but with no perceptible good effect. Upon vaginal examination she showed considerable tenderness over the right ovary, and a slight cervical tear was found. Abdominal section was performed December 10, 1891, by Dr. B. D. Evans, then first assistant physician in the hospital, now medical director New Jersey State Asylum at Morris Plains, N. J. Right ovary was very much enlarged and cystic. Left ovary normal. No irrigation or drainage. She did remarkably well, and did not have one bad symp-

tom follow the operation. She was no longer quarrelsome, had no maniacal outbreaks, and only two slight convulsions six weeks after the operation. She remained in a convalescent ward, her language was no longer violent, she assisted the attendants with their work, and on May 12, 1892, was discharged cured. A few weeks prior to the present writing (September 6, 1892) she visited the hospital, and was then earning her own living and had had no recurrence of the attacks.

EPILEPSY (THREE CASES).

Two of the cases of epilepsy had such gross lesions of the intra-pelvic viscera, with beginning of the attacks after the age of puberty, that there was good reason to hope for some improvement in the neurosis from the cure of the local condition. Unfortunately, both cases died, probably from sepsis. In the third case gratifying improvement has already occurred, both in the epileptic attacks and the psychical condition dependent upon them.

CASE XVI.—L. McN., aged twenty-three years, white, single. Family history good, with the exception of her father being intemperate. She was admitted to the Maryland Hospital for the Insane, July 11, 1891, suffering from epilepsy with mania. The epilepsy came on about seven years ago, but there was no mental aberration until two years ago. When admitted to the hospital she was in a state of mental exaltation, laughing hysterically without apparent cause. Conversation nonsensical, and, like most epileptics, she was very religious, repeating verses of Scripture on all occasions. She was very sexual in her conversation and actions, and wished to marry every man whom she saw in the hall. Upon examination of the genitals an elastic tumor about the size of an orange was found to exist to the right and behind the uterus; great induration and tenderness over the entire pelvic vault. Abdominal section was performed on February 9, 1892, with the usual aseptic precautions. The ovaries were found filled with pus and behind the fundus of the uterus, adherent to each other, to the uterus, the rectum, and the small intestines. The oviducts were both filled with pus and dilated to an enormous size. While separating the adhesions a large abscess ruptured and about two ounces of pus discharged, some of which found its way into the peritoneal cavity. There was considerable hemorrhage, produced by tearing away the adhesions, and the cavity was flushed with warm distilled water, but no drainage used. Pulse after the operation was 120, temperature 101° F. Second day, pulse 110, temperature 100.6°

F.; very talkative, face flushed, skin dry and hot, tongue dry and coated. Third day, pulse 117, temperature 99.7° F.; pulse very weak, patient much worse, with exaggeration of all symptoms. Convulsions on the day of operation as well as on the second and third days after. Died on the morning of the fourth day. Post-mortem showed the peritoneum to be very much congested, with small hemorrhagic spots scattered here and there. Intestines also congested. There was a considerable amount of serous pus in the abdominal cavity. The fatal error in this case was, I think, the omission of drainage. The fact, however, that the patient was an epileptic, and likely to have convulsions, deterred me from the use of the tube. I felt so confident, also, that the irrigation had removed all the pus that I risked the case without drainage. In a similar one in future I should drain. There is no doubt that the patient died from sepsis.

Case XVII.—M. B., white, single. Family history good; no epilepsy in the family. Admitted to the Maryland Hospital for the Insane, April 4, 1890. The epileptic seizures dated back several years, but the insanity only developed a short time before admission. When first admitted to the hospital the epileptic attacks occurred once in two weeks. She was quiet, well-behaved, and fairly rational in her conversation, except immediately before an epileptic seizure, when she would become morose and disagreeable and would fight upon the slightest provocation. Sexual excitement high, and she would throw her arms about any male visitor. The epileptic convulsions increased in frequency, until at the time of operation she had one attack nearly every day. With the increasing epileptic paroxysms her mind showed beginning dementia; she would sit with a silly smile on her face, rarely talk, but if angered would fight. Upon vaginal examination the nymphæ were found elongated and the vagina large and dilated. A large, elastic tumor was made out on the right side and behind the uterus, and was apparently connected with the ovary and tube. It could be equally well made out per rectum. Abdominal section December 30, 1891. Usual aseptic precautions. She had an apparent epileptic seizure while under the anesthetic, which lasted one minute. Right ovary normal. The left broad ligament was the seat of an elastic, fluctuating cyst about the size of an orange, with the tube crossing the tumor. There was little bleeding, consequently no irrigation. No drainage. The patient was very restless after the operation, and complained of pain in the abdomen. She had several convulsions during the afternoon. Evening temperature 100.4° F. Morning of second day, temperature 101.2° F., tongue dry and coated, skin hot, pulse rapid but strong. Morning of third day, pulse 118 but weak,

temperature 102.6° F.; very restless, delirious, skin hot and dry, tongue brown in color and excessively dry. Evening of third day, pulse 149, temperature 104.6° F.; restless, pulse very weak, tongue and skin dry, breathing very labored. Died on the morning of the fourth day. The patient was treated with eliminants, Epsom salts by mouth and enema, and calomel. No effect, however, was obtained upon the march of temperature. While the patient died *in statu epileptico*, I cannot rid myself entirely of the thought that sepsis was the main cause of the fatal termination, and might possibly have been averted by drainage. Post-mortem examination disclosed a small quantity of cloudy serum in the pelvic cavity, but no inflammatory action in the peritoneum.

Case XVIII.—M. S., aged twenty-four years, white, single. Family history good. Admitted to the Maryland Hospital for the Insane, April 12, 1892. She had been afflicted with epilepsy for nine years, and when admitted had about three attacks a week. The convulsions were typical epileptic ones in character, and were ushered in by a loud cry. Her abnormal mental condition dates back three years, when she began to act in a peculiar manner and talk a great deal about marriage. She was rather incoherent in her conversation, sexual excitement well marked, and she would embrace any man who ventured in the hall. She had a silly, expressionless smile on her face, and, like all epileptics, talked a great deal about religion. Her menses appeared only once, and then about one year after her first epileptic attack. Vaginal examination disclosed elongated nymphæ and a dilated vagina showing her to be probably addicted to masturbation. There was some irregularity about the cervix, but nothing definite regarding the condition of the ovaries and tubes. Uterine appendages removed May 12, 1892, and ovaries found markedly cystic. No adhesions. No irrigation. No drainage. Stitches were removed on the eighth day. The wound had united by first intention. An extremely rapid pulse caused some apprehension for some days after the operation, but the patient made a good recovery.

September 1, 1892. There has been marked improvement in this case during the last three months. She has only had convulsions at the times when her menstrual flow should have been present, and at those times has had two or three attacks only, being free from them entirely in the intervals. The sexual excitement is disappearing rapidly, and she is rarely excited by the sight of men as before the operation.

In conclusion, I may be permitted to briefly recall what I regard as the most prominent points in the foregoing paper. In the first

place, I believe the facts recorded demonstrate that there is a fruitful field for gynecological work among insane women. Secondly, that this work is as practicable and can be pursued with as much success in an insane hospital as elsewhere. Thirdly, that the results obtained not only encourage us to continue, but require us in the name of science and humanity to give to an insane woman the same chance of relief from diseases of the ovaries and uterus that a sane woman has.

DISCUSSION OF THE PAPERS OF DRS. MANTON AND ROHÉ.

Dr. C. B. Burr, of Pontiac, Michigan (opening the discussion by invitation): Mr. President, I am deeply indebted to the Society for the courtesy extended me in the invitation to open the discussion of the able papers that have been read. May I inquire, before going any further, whether I rightly understood Dr. Rohé to say that, of the 35 women examined for disease of the pelvic organs, 18 were operated upon for removal of the ovaries? Is this understanding correct?

Dr. Rohé: It is; yes, sir.

Dr. Burr: May I ask Dr. Rohé in how many cases of the 18 operated upon was the pathological condition such as to ha ve justified the operation had the woman been sane?

Dr. Rohé: If I am correct, I should say that in 15 of the cases, judging from the specimens exhibited, the operation was justifiable. I am not quite sure but that it would have been justifiable in all; but I will say that in 15 the operation would have been justifiable by the actual condition of the organs.

Dr. Burr: Then I must say that I am alarmed at the percentage of patients having ovarian disease. The outlook is not a hopeful one. The Eastern Michigan Asylum (with which I am connected) makes no apology for the fact that it has, and has had for several years, a consulting gynecologist. Dr. Manton this morning presented an excellent report of his work in that institution. He has done a great work conscientiously and well. Both gynecology and psychiatry are indebted to Dr. Manton, and his work has been crowned with success. Why? First, because of his skill and dexterity; second, because of his conservatism. I speak in behalf of gynecology when I say that abdominal surgeons should be very careful not to exceed certain limitations in operating, either upon the sane or the insane woman.

In two instances which Dr. Manton reported this morning the operation of extirpating the ovaries was undertaken with the idea in view of reaching the patient's mental condition directly, and not, strictly speaking, because of local disease. In one of these cases the operation contributed not alone to the patient's welfare, but to the well-being of everybody around her. It was absolutely necessary that something should be done, as she was a most degraded, hopeless, demented, and uncomfortable patient. She had the habit of masturbation, and was shameless in her conduct. Once in four weeks the sexual stimulation from ovarian congestion led to an increase in vicious indulgence. This indulgence, in turn, reacted upon the psychical condition, and increased mental perturbation followed. The operation seemed advisable for the purpose of bringing about an early menopause.

In the second case, an operation was undertaken as a curative agency in the treatment of her mental disease. In this case there was great sexual excitement and marked increase of mental disturbance coincident with menstruation. Dr. Rohé rightly says there is in all forms of mental disease more or less increase in the morbid manifestations at the menstrual period. I think attention should be called, however, to the fact that periodicity obtains in many forms of insanity, and in both sexes. Periodicity seems to be a law in mental disease as much as it is a law in fevers or other diseases ; and it does not follow that mental disturbance is dependent upon perturbed sexual functions simply because it occurs coincidently with menstruation. The morbid mental manifestations of the patient may be aggravated at the menstrual period, without a diseased condition of the sexual organs being the cause of the insanity. The mere fact, therefore, that mental excitement or depression is increased in a given case at the time of menstruation does not alone, to my mind, justify surgical interference.

If, as in the second case of which I have made mention, there was, in addition to the sexual excitement, strong sexual delusions, and rapid mental deterioration which pointed to a helplessly degraded future, in such a case it would seem as though an operation for the purpose of establishing an early menopause would hold out the only prospect for the patient's relief. In this case the operation was, in my judgment, justifiable; and the person was certainly more comfortable after the operation than before. There was not, I regret to say, the degree of mental improvement which we hoped for. It may come at a later period.

Dr. Rohé speaks of justification for the operation of removing the uterine appendages on the ground of expediency—for the prevention of conception. I have no contention with him as to the desirability of

preventing insane women from conceiving; but it is questionable whether, as surgeons, we should anticipate the law and take matters of that kind into our own hands. I certainly believe that we cannot do it and escape criticism. It is better to be on the safe side. I am heartily in accord with any proper measure or expedient which may be proposed which tends to restrict or diminish insanity. I am a firm believer in the somatic etiology of mental disease, and I was pleased with what Dr. Rohé has said in reference to this subject. It is unquestionable that 50 per cent. of our patients owe their mental perturbation, directly or indirectly, to some physical cause. Emotional disturbance, anxiety, things which undermine the constitution by interfering with sleep and digestion, operate as indirect physical causes. Is not the moral plain enough to anybody? We must find out what lies at the bottom of the insane condition. We should not deny to an insane woman surgical interference if she has a disease in the pelvic cavity which demands it. It would be as irrational as to deny to her neighbor a cathartic in habitual constipation. It is irrational; it is absurd; it is wrong.

But let us not be too fast or too ready to operate because the ovaries are accessible and because they do not amount to much in the animal economy. Let us not take them out, presupposing they are at fault If insanity were confined to one sex we might more properly draw such a conclusion; but it is not. The experience of the asylum with which I have long been connected—and asylums generally, I believe—is that patients are, numerically, about equally divided. We ought not, in the case of women, to infer that the large majority of cases owe their downfall to pelvic disease, and among men, hold disease of other organs than those of the sexual system accountable for the major part of their mental disturbance. As a matter of fact, the etiological factors are much the same in both sexes, and I question whether pelvic disease in women is of as great importance as a causative factor in insanity as is generally supposed. If serious disease of the ovaries exist, let us by all means remove these organs. If, on the male side, we have disease of the testicles to contend with, which interferes with the patient's comfort, and is a causative factor in his mental disturbance, let us remove these organs, if it is necessary. I do not think any of you are in danger of extirpating healthy organs; but I beg of you not to presuppose the sexual organs at fault, and hold them accountable for too much. Be careful in diagnosis.

I am reminded at this moment of a very important case we had in the asylum last year. The man had melancholia for many years, and was as uncomfortable and miserable as one could imagine. He suffered

from varicocele. This condition was operated upon by my confrère, Dr. Christian, and the operation gave the patient temporary relief. Later on he suffered from an intense neuralgia of the testicle, and Dr. Christian, at his urgent solicitation, removed one testicle. The pathological condition of the extirpated organ justified the operation. It showed evidences of chronic inflammation. The patient got better, but eventually the same set of symptoms occurred in connection with the other testicle. This organ was also removed; and what has been the result? The man is as happy to-day, apparently, as any man can be. He calls himself as well as he ever was in his life. He has ability to perform regular work in connection with his farm, and during the Grand Army parade in Detroit a year ago he walked the entire distance of the parade—several miles—without fatigue and without discomfort. This case certainly shows the importance of surgical interference sometimes in diseased states. The cases Dr. Manton has operated upon have all shown some mental improvement.

In conclusion, I desire to claim for Dr. Christian, Assistant Superintendent of the Eastern Michigan Asylum, priority in describing the relation between Bright's disease, or, as he has termed it, arterio-capillary fibrosis, and insanity. He published in the *Journal of the American Medical Association* several years ago, and more than a year and a half before the publication of Dr. Bennett's researches, an exhaustive and scholarly paper upon this subject. Why he has never received more credit for the work I do not know.

I feel highly honored, Mr. President, and deeply indebted for your kindness in inviting me to speak.

Dr. J. Henry Carstens, of Detroit.—The cause of puerperal mania has been considered to be puerperal septicemia. I remember some years ago Dr. Holmes, of Chatham, Ontario, reported a large number of cases in which he claimed that puerperal insanity was due to lacerated cervices, and that repair of these cured a number of the cases. There was probably a lacerated cervix at the time of labor in some of his cases, which served as a nidus for the absorption of septic material, and the insanity was kept up afterward by a cicatricial plug in the cervix. We ought to impress upon the general practitioner that one great point about puerperal insanity is, that it is either due to absorption of pus, to constitutional causes, to a laceration of the cervix, or to some kind of injury of the genital tract, one or several. An insane patient with a lacerated cervix should be put under the influence of chloroform, a careful examination made, and the cervix repaired early, and not delayed three or four months after the time of its occurrence.

There is one important point I desire to call attention to, and that is the difficulty of diagnosticating these cases. We know that Dr. Ross has examined a great many of them, and his opinion would prove valuable. We find that nearly every woman has some kind of trouble with the genital organs. It is not easy to say that this, or that, is the particular cause of insanity in any given case, and herein lies the importance of having men who practise gynecology well-trained diagnosticians.

A little over a year ago a woman came under my observation who had been insane for some years. She was so violent we had to strap her down for days. This woman had disease of the ovaries, and had at the same time complete prolapse of the uterus. I said to the attending physician: If we remove the ovaries how do we know that they are the cause of the insanity?—let us remove everything. Let us take out the uterus, ovaries and tubes! And shotgun-like, we hit it. The woman entirely recovered, with the exception that she is a little weak mentally, but she knows everybody and enjoys life. In this connection I desire to refer to another case which came under my observation about two months ago. I had two cases of abdominal hysterectomy. One of these patients I had never seen before. The woman was so wild that no one could manage her except the physician who treated her. She was examined a long time ago, when in bed, by a neurologist, who said she must go to an asylum. A sister of hers, who was a nurse, interceded for her. This patient had a fibroid tumor of the uterus, which was the cause of her insanity, and the physician in attendance—a woman—asked me to operate. She said: Will you agree to operate on her without seeing her beforehand, on my statement of the case? The patient was put under the influence of chloroform, and I removed the fibroid tumors—there was not simply one fibroid present, but a number of them, and after their removal the woman got along well. She is a bright, finely educated woman, of thirty-six years of age. She commenced to feel better at once, and three weeks after the operation was able to sit up. Ten weeks after the operation she began to teach art, having a large class. This was undoubtedly a case in which reflex action was the cause of the insanity. I do not operate nowadays for neuroses alone very much. Formerly it was the practice to operate very frequently for symptoms, but I do not think that we are justified in doing so. I do not believe a healthy ovary can cause reflex irritation of any kind. I must have evidence that there is existing disease, and if there is disease of the ovaries or of the uterus, or a tumor present, these justify operative procedures whether there are any nervous manifestations or not.

In conclusion, it is absolutely necessary for us to make an early diagnosis and remove the source of irritation. If we operate late, secondary changes take place, and we will have little or no benefit from the operation.

Dr. Rohé has presented an interesting subject, and I hope he and Dr. Manton will pursue it to definite conclusions, giving us from time to time a report on their work.

Dr. Edwin Ricketts, of Cincinnati.—I have had two cases that I wish to speak of that have some bearing upon this subject, though not sufficient time has elapsed to justify any assertion as to the results. These patients consulted me last November. One was a married lady thirty-two years of age. She had been married six years, never pregnant, but was very desirous of having children. Some three or four years previous to her visit to me she had an attack of acute mania, for which she was placed in the Athens Asylum under charge of my friend, Dr. A. B. Richardson. I am not able to state the exact length of time she remained in the asylum, but finally she was restored mentally to the extent that she returned to her home. The attack of mania came on immediately following her menstruation, and her physician, who is a brother-in-law of the patient, said that the trouble was due to inflammatory processes in the pelvis. It was for this reason that I was consulted by the patient's husband and herself at the beginning of the second attack, which was last November. Upon vaginal examination the uterus was found fixed. I was begged by the family and brother-in-law to do something surgically for this patient, as medicine had failed to be of any permanent benefit. The abdomen was opened and two encysted ovaries were removed. As I said at the outset, sufficient time has not elapsed since the operation to justify any positive assertions as to the outcome of the case. I report it in connection with Dr. Rohé's paper, as it tends to corroborate some of his statements. Since that time she has had no trouble. She is able to attend to her household duties, is an artist by profession, and her work gives satisfaction to herself, husband, and friends.

Another case, a young woman, twenty-one years of age, consulted me after having been an invalid for four years. At the beginning of that time she weighed one hundred and sixty pounds, when she became a hystero-epileptic and lost forty or fifty pounds of flesh. Her attacks were terrible to witness. This patient had undergone all the medical treatment that could be called into requisition by men who were competent to treat her from a medicinal standpoint. The abdomen was opened, an intra-ligamentous cyst found on the left side, and two diseased ovaries, adherent and bound down, were removed. The

attacks from November until April were not so frequent, but yet it looked as though she was not going to derive any benefit from the operation. Since April she has recovered in flesh. A week before coming to this meeting I received a letter from her in which she states that she is no longer a burden to her family, but able to take care of herself.

This case also, it seems to me, possesses some interest in connection with the subject introduced by Drs. Manton and Rohé, whose papers have interested me greatly.

Dr. Willis P. King, of Kansas City.—I wish to add a few words to what has been said in the discussion thus far and to report two cases; but, before doing so, I wish to say that I have long since believed that there should be a consulting gynecologist for all our insane asylums, or, at least, men appointed as physicians who understand something of the pelvic diseases of women. I do not believe by any means that all insane women have pelvic diseases, but I do believe that many of them have; and further, that these diseases many times stand as the cause of their insanity, and if such cases were operated upon early, great good might be done. I have seen, in the few cases I have operated upon, all kinds of pelvic disease, and have come to this conclusion—I do not know whether it is the experience of others or not—that non-inflammatory disease of the pelvic organs, cystic degeneration of the ovaries, creates more disturbance in the mentality of women than do purely inflammatory conditions. This, at least, is my experience. I have operated on women who have had pelvic peritonitis after abortions and after childbirth, where the ovaries were very much enlarged, universally adherent, and where there had been pelvic abscesses that had been tapped. These women would do their work and were in good mental condition, but at the menstrual periods they would suffer. I have seen other women with cystic ovaries who were mentally disturbed constantly, and in a nervous condition much worse than those arising from conditions of an inflammatory character.

As to the cases: In the year 1888 a patient was sent to me when I was living in Sedalia, Missouri. She was a German, thirty-eight years of age, the mother of eight children, who had, eighteen months before she came to me, an abortion at about three months. She had been attended by an incompetent man—a drunkard from the town in which I lived. The patient lived five miles in the country, but the doctor did not make an examination. She said he gave her some "black drops," which was, I presume, extract of ergot. She evidently had bled almost to fatality. She informed me that at every monthly period she

had a hemorrhage which lasted several days. On examination I found there was still hanging in the cervical canal a portion of the membranes—the remains of the abortion—which were attached and had received nourishment from the adjacent parts. The membranes left projected into the vagina from the os three-quarters of an inch, and when pinched with forceps bled. I chloroformed her, curetted the uterus and removed the membranes. This moderated the hemorrhages, but did not entirely check them, though she did not flow nearly as much as before. Up to this time I made no particular examination of the uterine appendages, but she afterward came back to me. I then examined the ovaries, found them much larger than normal, quite hard, and very easily made out without bimanual manipulation. The woman's mental condition now was bad. She would come to my office and stay there two or three hours at a time, sitting in the waiting-room and crying. She was afraid she would die if not operated on, and that she would die if she were operated upon. Having been an industrious woman, she neglected her work and family, and yet was not willing to undergo an operation. She suffered from hot flashes and with sinking-spells consecutive thereto. I told her that I thought her ovaries ought to be removed. After I had removed to Kansas City I received a letter from her uncle urging an operation. I operated on the 16th of December, 1888, removed her ovaries, did the operation in thirty minutes, and put the patient to bed without shock. She got well promptly without any untoward symptoms. Her mental condition after some two or three months was entirely cured.

The other case was a woman thirty-four years of age, American, the mother of three children ; raised in Ohio, but living in Kansas City, Kansas. She came to me in 1890, complaining of a constant pain in the region of the left ovary, with disturbed menstruation. She menstruated too often and with increased pain at the time of each molimen. Upon examination I found the left ovary prolapsed, quite far down, adherent, and somewhat harder than usual. The other ovary I could make out was not enlarged, but indurated. I suggested to her the idea of an operation for removal of the ovaries. There was no history of any inflammatory condition nor of any trouble following miscarriage or labor. I packed the vagina twice a week for several months, with absorbent cotton wrung out of boro-glyceride and glycerin. She would come to my office and talk excitedly, and her friends became more and more alarmed about her condition. She would go away for two or three months, and I would not see her ; then she would come back again. The ovary, from the packing, seemed to have been lifted up in the pelvis, and the adhesions seemed to give way before the

packing. Her mental condition was becoming depressed, which continued until last year. During the month of September I received a letter from a small town in Ohio, telling me to send her a pass at once to Kansas City, as she had been there three months visiting relatives, and wanted to go home. I wrote that I could not send her a pass. A few days afterward she made her appearance in my office. She was mentally unbalanced and talked excitedly. She said that she could not now stay at home. I asked the reason, and she said she did not know. Her husband told me that she had been an excellent housewife and had kept the children clean up to the time she began to come to me for treatment, after which she neglected her household duties. She left her children, ran on the streets, and paid no attention to her home. She wanted to get away from home, and tried to induce me to write a letter to her husband to permit her to go to Buffalo. I asked, "Why do you want to go to Buffalo?" She said, "I want to go away from home." The next day her husband appeared at the office, and I told him about his wife's condition. He said, "Doctor, I believe my wife is insane from the way she is acting. When she came home yesterday afternoon she acted excitedly. I examined her pockets and found a package, which I took to a druggist last night and had it analyzed, and the druggist told me that the preparation was arsenic, that she had gotten this powder and was going to kill herself." He took her to the hospital the next day, and in the evening she escaped and ran away. She was captured, and he subsequently remained in the hospital with her. We forcibly put her under the influence of chloroform, at her husband's request, and both ovaries were removed. The left ovary was bound down by adhesions, was somewhat larger than normal, and contained cysts. The right ovary was cheesy. The operation was finished without any untoward event. She did well afterward, with the exception that she had acceleration of temperature, at times, which I could not understand. I operated on her on the 5th of October. On the 19th of October I left home for New York, to be gone for a month, leaving her in the hands of my assistant. A few days after I had left a discharge appeared at the lower stitches, which he said was not purulent, but seemed to be disintegrated blood, such as is found in an old hematocele. There was no odor to it. She promptly recovered after that, so far as her physical condition was concerned. We kept her in the hospital until all discharge had ceased. I have not seen the woman since. Six months ago I met her husband, and he said, "Doctor, my wife has improved wonderfully in her condition. Her mental condition is as good as it ever was, with the exception that once in a while she manifests a little mental aberration. I

take her out in the afternoons for a long ride every day or two. She is much better than she was before the operation, and I certainly will never regret that she had her ovaries removed."

Dr. James F. W. Ross, of Toronto.—I am very glad that we have such a reliable reporter as my friend Dr. Rohé, to bring forward such cases. I think that we are treading on very dangerous ground, and any criticisms that I have to make are made in the interest of what I consider to be the object of us all, namely, the true study of science, and they are offered in the friendliest spirit. Professional recriminations in any discussions are injudicious; but, above all, our discussions should be friendly in word as well as spirit. Dr. Rohé has been fortunate in having an intelligent board of managers to assist him in his work. He has been doing pioneer work, and he has been able to use his judgment in the direction in which his work should progress; but it frequently happens that those who initiate procedures have good judgment, while those who follow them have not. I am afraid that because some operations upon the insane will have a good tendency, such results may influence many young enthusiasts to take out the ovaries of every insane woman.

I may say that I have been disappointed, not with the literary merits and the high order of Dr. Rohé's paper, but with the pathological condition found in the ovaries exhibited. I must differ from him in his answer to the question, "In how many of the cases was the pathological condition such as to justify surgical interference in a woman who was sane?" He said he thought in about fifteen out of eighteen cases, from which specimens were exhibited. My examination of the specimens has been but cursory. I have looked in each one for evidence of tubal inflammation. I find the fimbriæ of the tubes in all the specimens open, not agglutinated; as a consequence, I come to the conclusion that in none of the cases has there been serious pelvic inflammation. In one case there is undoubted pathological change, and that was the case of one enlarged ovary. I may, perhaps, have missed some of the specimens. We must endeavor, however, not to be misled by examining specimens in a bottle in this way. Dr. Reed has seen a great many of these specimens on the plate, and he tells me that he is convinced that in a great many of them there were adhesions. The point I wish to make is this, that even with an ovary with adhesions in a sane woman, I am much more conservative than a great many, and unless she is suffering from severe pain and inflammatory symptoms, such as would invalid her, I do not operate.

If a disturbance of menstruation will cause insanity, then the arti-

ficial production of the menopause ought to be a method of cure, and if we would operate on a sane woman who is suffering intense pain, and take out her ovaries, we should also operate on a patient who is insane and suffering from similar symptoms, taking out her ovaries to remove the insanity, if the ovaries are, owing to their diseased condition, the cause of the insanity. We want to arrive at a better understanding of the influence of the ovaries. Does masturbation produce insanity? If the sexual desire induces masturbation, and masturbation produces insanity, then we ought to remove the organs that produce the desire, and in that way cure the insanity. It seems to me that this would be applicable to the male as well as the female in cases of insanity. Then we must look at the subject in another way: that is, many cases of insanity will recover without any operative procedure at all. We have to take that into consideration in discussing the merits of any one procedure. Dr. Carstens has said that after he had taken out the uterus of a woman she was cured of her insanity. Taking out the uterus frequently produces mania, and we thus have the two opposite conditions resulting after the same operation. I think it has been proven that mania occurs after removal of the uterus. Then, another point I wanted to mention was this, that there are not as many pus tubes in the specimens as I would like to see. In this, too, I have been disappointed not a little.

A word of warning to men who are working along this line is not out of place. I think there is danger of such procedures being carried too far. The profession jumps at a thing in too great a hurry, and as a consequence we drift into disgrace with the general public.

[*Note*, added by Dr. Ross.—The specimens passed to me were not the ones presenting the pathological changes undoubtedly evident in many of those inspected after the close of the session. The disappointment mentioned above disappeared, and I felt that I had criticised Dr. Rohé's work unjustly.]

Dr. John C. Sexton, of Rushville.—In connection with the discussion of this paper I desire to refer to one sympton bearing on these cases. Dr. Rohé, in his paper, made reference to the anesthesia of insane patients. I have two striking illustrations of that symptom, and would like to cite the cases with a view to the warnings they suggest. The patient had childbed fever following labor, and recovered to a certain degree, but was left with a great deal of pain in the pelvis. She went from one physician to another, trying to get relief, but utterly failed. In the course of time it came my turn, and I found, upon examination of the pelvis, decided masses upon either

side. The patient had had all kinds of treatment. It appeared to me clearly to be a case of tubal disease following delivery. I advised the removal of the diseased masses, and was promptly discharged. The pain went on for a considerable time, when she fell into the hands of another physician. I soon learned that she had been relieved of the pain quite suddenly and unexpectedly. In a few weeks after that she began to deny to her family and friends that she ever had had this pain. They had spent all the money they could put together for nine or ten months in trying to cure her, and then she denied she ever had had any pain. It was not possible to make the first examination without an anesthetic. The patient followed the lines you are all familiar with, one symptom of insanity following rapidly upon another. She was taken to an asylum and died of secondary tuberculosis. Post-mortem examination revealed pus in both tubes, a fibroma, and disease of the ovaries. The startling feature of the case was the sudden and unexpected stoppage of the pain after it had so distressed the patient for such a length of time.

One other case: A young woman, unmarried, developed pelvic disease. She had irregular menstruation, and was treated by different physicians, some of whom possibly were not clean. I thought she was infected by instruments. She developed a pain within the pelvis. On examination of the patient, by one of the members of this Association, disease on the left side was found. He advised an operation, but the patient declined to have it done. Not very long after that—perhaps four weeks—the pain disappeared, and she began to grow melancholic. At times there were violent outbursts of hysteria associated with melancholia. She then fell into the hands of a physician for treatment of the local trouble, but whose views did not coincide with those of our fellow-member before referred to. He did not believe that this mass in the pelvis was a diseased ovary or tube, but that it was a misplaced uterus. He introduced a sound, twisted it all around, and following its withdrawal was a violent pelvic peritonitis. Immediately upon the return of the pain in the pelvis her mind cleared up. The melancholia disappeared *pari passu* with the inflammatory symptoms in the pelvis. I have had one other case that died in an insane asylum in our State, of whom I feel justified in saying that the whole cause of her insanity was disease of the ovaries and tubes.

Dr. C. A. L. Reed, of Cincinnati.—I have been very much interested in this subject for some time, and I have had occasion to previously express myself with regard to the etiological relationship of disease within the female pelvis to alienation in women. I have had

occasion to express myself upon the inhumanity of the existing system to which we are daily treated, namely, the incarceration of afflicted women in asylums; to the inhumanity of that system which makes it devolve upon one man to take within his purview the treatment of the diseases of the eye and ear, the diseases of the respiratory and generative organs, and master them all with regard to the cure of insanity. Unfortunately, however, the gentlemen who have heretofore, and are yet, to a certain extent, intrusted with these responsible positions, have not recognized the relationship of the organic diseases to disease of the mind and nervous system. They have treated this trouble from a metaphysical standpoint chiefly, or have failed to give some recognition to the somatic origin of insanity. They have confined their views of the somatic changes to the brain itself. It is against that system I have inveighed. It is not the province of this Association to do what has been done to the distinguished essayist, and the distinguished guest who has favored us with remarks on this occasion, to furnish the testimony from one standpoint, which is calculated to overthrow this organization of so-called eleemosynary institutions, organizations which are a disgrace to our civilization. This testimony is given here with more than usual emphasis. The two manifestoes that we have heard are calculated to mark an epoch in the history of medicine and its humanitarian relations. The view has been expressed by the alienist that examinations of the insane are dangerous and tend to make patients more insane, and that those examinations have been made with a view to finding organic disease within the pelvis; that operations were dangerous, and ought to be attended necessarily by a high mortality. I refer now to the *American Journal of Insanity* for last year, in which Dr. Brush, Superintendent of an asylum in Baltimore, refuted some of the remarks made by myself. The testimony that has been offered here to-day is in direct refutation of every declaration made in that paper.

When we speak of curing these patients by operating on diseases in the pelvis we stand on the side of the invincible. To the relief of unfortunate patients from organic disease mental recovery is incident; it is the humanitarianism that is involved in relieving women who are otherwise unfortunate, of disease within the pelvis, the same as we extend that relief to their more fortunate sisters. The same observations were made years ago by distinguished gynecologists as were made to-day, and among them we heard the name particularly of Skene quoted in connection with adverse testimony therein described. Skene, in some recent remarks before the Kings County Medical Association, and reported in the *Brooklyn Journal* for March, 1892, alluded to that

report. From his remarks on the occasion, referring to the work done by Dr. Shaw, he fails to make clear that operations were undertaken for the removal of only diseased organs. He makes justifiable what would be more than inference—he actually performed the practice of spaying, that is the removal of healthy appendages, a practice which is now happily relegated to our veterinary brethren. The testimony that Dr. Skene gave on that occasion is important. Removing these organs in spite of polypi and otherwise less important affections, the results have been oftentimes unsatisfactory. And why? Simply for the reason that we are dealing with neglected cases, and that we are not always operating with reference to the cure of the mental condition. His best results obtained so far have been with organs that have been a long time diseased and functionally useless for some time. The results in that class of cases are admirable, and the effect on the nervous system is beneficial. A little more pointedly he says, "I do not believe that the removal of the ovaries or tubes, or of the uterus, is likely to produce disease, functionally or otherwise, of the nervous system, for good reasons." We have heard several excellent remarks on the papers that have been read, and I wish to give a little attention to only one or two, leaving the closing to the essayists themselves.

Reference has been made to the persistence of pain and to the persistence of peripheral irritation following the removal of these organs, and the remark has been made by the gentleman last upon the floor, that he believes that mania is often induced by removal of the uterus. In discussing this question we are reminded of the fact that we frequently fail in relieving pain by removing the appendages because of inflammatory deposits within the stroma of the uterus itself, which deposits continue to impinge upon the terminal filaments and keep up the pain. The relief of peripheral pain within the pelvis is much more radically assured by the removal of the uterus itself, and frequently, Paine says, he has had occasion to operate a second time upon his patients for the relief of persistent pain, by removing the uterus. But they say now that the removal of the uterus and its appendages is likely to cause mania. I would like to ask Dr. Burr the number of patients in the average asylum in which the cause of insanity is set down to change of life.

Dr. Burr.—I cannot answer that question satisfactorily.

Dr. Reed (resuming).—I was in hopes that I would get figures from Dr. Burr. We find there are a large number of patients in each of these asylums, in which the cause is put down to the change of life that comes on in the ordinary course of time. In the extirpation of

the uterus we induce that change of life. It is nothing more nor less than an ordinary change with its attendant responsibilities. If there is instability of the nervous system which yields to the inhibition of that rhythmical activity of the genital organs, and the instability amounts to insanity, then I do not think our responsibility is increased one particle by the precipitation of that change, and that is one of the things that we cannot take into account.

Dr. King has made a clear point which I wish to emphasize, that the most painful ovaries, the most exasperating cases with which we have to contend are those in which we have no inflammatory symptoms aside from pus cases—those cases in which there is follicular degeneration of the ovaries. These are the cases that are not adherent, but they are the most painful cases with which we have to contend; they are the cases that keep nagging the nervous system and the cerebrum on to madness.

I regretted to hear Dr. Ross allude to the absence of inflammatory symptoms as indicating the absence of pathological lesions, because pathological lesion and inflammatory lesion are not necessarily synonymous. Inflammatory changes in the appendages are capable sometimes of spontaneous recovery; changes such as I have indicated on the blackboard are never capable of spontaneous recovery. These are the cases which are very much more serious in their etiological relationship to nervous troubles than are the inflammatory changes.

Dr. Ross.—In those cases of disease of the ovaries do not the patients complain of pain, Dr. Reed?

Dr. Reed.—Dr. Manton tells me that in certain cases severe pain is not complained of. I never saw in my life in a sane patient a case of cystic ovary that was not the most painful class of cases with which I have had to contend. I understand the conditions of alienation which will make them insensible to the ordinary impulses of pain.

Dr. Edwin Walker, of Evansville.—I have only a few remarks to add to the discussion of this subject. I became interested in it some years ago from a study of neurotic cases. I have seen cases of puerperal insanity, two of which I can call to mind now; one died, and the other became a hopeless dement. These cases occurred about ten or fifteen years ago, nothing surgically having been done for them, for in those days it was not thought of. I am satisfied the mania was due to inflammatory lesions. On the other hand, I have seen a number of cases operated on for psychoses and neuroses which were not improved by the operation. I think, with Dr. Ross, we are treading on dangerous ground. I would like to see go out as the dictum of this Association

that operations should be made for demonstrable lesions only. If we go on doing operation after operation we shall certainly do harm, and with little or no benefit to the patient.

I wish to speak briefly of two cases of mild psychoses upon which I operated last fall for laceration of the perineum. One was a young German woman, twenty-six years of age, the laceration having occurred about a year before. She had a mild form of melancholia, could not pursue her ordinary vocation, and was very much depressed mentally. A short time after the repair of the perineum her mental condition cleared up, and she has been well ever since the operation.

The other patient had a laceration which lasted probably fifteen years, and associated with it was a large cystocele. She had a mild form of mania, and was suspicious of every member of the family, and yet had enough sanity left to know that she was suspicious. An operation relieved her very much, but the improvement was not so marked as in the other patient. She is now doing housework, which she could not do before. We should not cover up the origin in these cases by calling them reflex neuroses, but should ascertain the precise cause.

These patients suffered from congestions, which led to discomfort and deterred them from taking proper exercise; this led to dyspepsia and other nutritive troubles, which produced the neurasthenia, and the "reflex irritation" so called, in my opinion, had nothing to do with their mental states.

Dr. Rufus B. Hall, of Cincinnati.—In the main I agree with what has been said by Dr. Ross. I must congratulate Dr. Rohé, however, upon his excellent essay and the fact that he is doing pioneer work; still, I desire to raise another protest or word of warning from the fact that I think, with others, that we are treading on dangerous ground. The fact that the discussion has been continued so long will cause me to abbreviate the remarks that I intended to make, hence I will only refer to a point or two.

In reference to the pathological conditions present in these specimens justifying their removal, from *that standpoint* it occurs to me that the expression of Dr. Ross is not exaggerated. There are but few specimens in this collection indicating lesions for which a physician would be willing to advise an operation upon a sane patient, *i. e.*, from the pathological condition as demonstrated by the specimens themselves without taking the clinical history of the case into consideration. Taking the specimens as they exist, I judge there are but very few that show adhesions or inflammatory conditions. There is intended to be no personal criticism in my remarks. I only refer to this from the fact

that I want to emphasize the point I wish to make. I believe in insane patients we are confusing the two conditions found justifying operation —namely, that of the existing pathological condition of the ovaries, and the reflex trouble, especially in the cases reported in which there is cystic disease of the ovaries. In some of them there appears to be simply a cyst or follicle without any adhesions; in other words, a normal condition of the specimens, as near as we can tell from naked-eye examination. I say we are on dangerous ground if we assert that the pathological condition of the specimens justifies their removal. If we accept the dictum of Dr. Reed in this matter, we can take the ovaries out of every woman who has ever menstruated, and have just cause for the operation. I defy Dr. Reed to deny that I cannot demonstrate the follicles as mapped out on the blackboard, imperfectly normal ovaries. I do this because I believe it is a duty we owe to the profession, to our patients, and to ourselves.

Dr. King.—You would not operate unless you found a lesion by physical examination, would you?

Dr. Hall.—I would not operate on an insane patient while the original investigation is going on, unless I found a physical condition by the touch such as would justify the operation upon a sane patient.

The President.—This is a question I have been deeply interested in for a number of years, more particularly on the lines of hystero-epilepsy. I would like to say that the warning given by Dr. Ross is something we ought to heed. I believe his words are very healthful at this time, particularly with reference to the discussion that has taken place to-day. However, I must criticise Dr. Ross just a little. If he takes these specimens as handed to us in the bottles and judges of them as to their real pathological condition, I do not think it is a fair way. I believe it is our duty when we remove an ovary to make an immediate record of the condition of it. It should be floated, and the adhesions then present should be noticed. The specimen should not be placed so that anyone can handle it. We should not let it dry and then tell our assistant in what condition we found the ovary. We should pass a probe through the tube to see its actual condition. After having explored it with probe, open it up and see as to the real condition. If pus tubes are kept in alcohol for any length of time you cannot recognize their true pathological condition.

As to the point referred to by Dr. King, his patient unquestionably had a hematocele after the operation. If the hematocele had not discharged in that way, the absorption of the serum would have occurred, the fibrin left behind would have formed an organized mass that might

have kept up the irritation, and the result have been unfortunate. We know of the unfortunate results that sometimes occur in these cases. The hematocele left behind produces irritation, and patients do not recover as well as we can expect in consequence of it.

Dr. Manton has given us an excellent paper. Not long ago, in going through an asylum, the superintendent, a man who is a good authority, said to me, in the calmest manner, that he had a great many cases of insanity in his institution with the train of symptoms that have been mentioned here to-day. He pointed to one particular patient and said he thought an operation would do her no good, but I thought it would benefit her and free her from the condition of isolation—of being shut up in an institution with no possible hope of improvement without an operation.

Dr. Burr presented a strong point in referring to the desperate cases in which there are nerve changes. When they have reached that degree of pathological change an operation will do them very little, if any, good. There is then that condition which exists in true epilepsy. You may elevate the skull and remove the peripheral irritation whenever the habit is established, and yet frequently they do not recover.

In regard to hystero-epilepsy, it will be remembered that at the meeting of the Medical Society of the State of New York, February, 1892, I presented a paper on this subject, with a report of cases, and which was published in the *American Gynecological Journal* for April, 1892. Of the six cases there reported two are decidedly improved, and have remained so sufficiently long to insure safety and comfort for their continued life. Two cases were of doubtful improvement, but it is only fair to say that beyond a doubt they are to be classed as cases of true epilepsy. Two cases may be looked upon as absolute cures, and in these two cases I wish to emphasize that there were more decided pathological changes in the organs removed than the others, although they all presented evidence of cystic degeneration, sclerosis, and fibroid enlargement.

While I have not encouraged the operation for these cases of hystero-epilepsy, yet I still maintain that when a thorough and intelligent course of medical treatment has failed, and the case is fully explained both to the patient and her friends in all its bearings, and when consent has been given either by the former or the latter, I am willing to operate. I am also willing, if the patient is in that condition of mind unable to decide for herself, and friends are willing; or, if she has no friends, to act upon the advice of the celebrated English jurist and treat her as an infant.

As bearing upon the relation between masturbation in the female,

where we have this condition of dementia going on, I have had a singular experience. One of these cases which I operated on came from North Adams, Mass. She was a poor girl, and improved so much that I was astonished. Six months afterward I was called to see a man, twenty-three years of age, who had much the same mental condition. I saw him with his mother, an intelligent Irish lady about sixty years of age. Without wasting any words she talked to the point. She said: "Doctor, you operated on Miss So-and-so for the removal of the ovaries. She is a new girl. My boy has got a similar trouble, the result of his abuse. He is in a condition of insanity, and I brought him to you to remove the genital organs." I looked his case carefully over, but it was a sad one to examine. I sent him to the hospital and kept him under careful observation for a week. The old lady brought her husband down, and both were anxious that an operation should be done. I said we would have to talk with him on the subject. I found, after an intelligent course of treatment, that his condition was not improved. I suggested to him the advisability of an operation, and he flatly refused. I asked the old lady and her husband if they were willing to sign any legal paper necessary, and they said they would do so. They were people of some property, and I took this course to relieve me of possible trouble afterward, as they came from an adjoining State. However, I did not operate. I had done the operation before in the case of a gentleman from my own State, about forty-eight years of age, who was in comfortable circumstances, but who had suffered for a period of some years from neuralgia of the testicles. He came for an operation. He had periods of mental depression. He gave me his history, and said that if his condition continued he was afraid he would commit suicide. I had his expressions taken down in the presence of proper witnesses, and his history written. I did the operation, and in about two years afterward he was the happiest man I had met for a long time. His mental condition was fully restored.

I have another case in which I operated for varicocele. Afterward this man developed neuralgia of the testicle, and was examined by other physicians of Albany. The man has since had the most bitter feeling against me, believing that I had done an operation that brought about this neuralgic condition of the testicle, and he said if he ever caught me he would do something serious. I could relate other cases of interest, but I will not take up your time. I can only say that the subject is surely being carefully investigated, and we are indebted to Drs. Rohé and Manton for giving us their views in a straightforward, thoroughgoing manner.

Dr. Rohé (closing the discussion).—I have trespassed so much upon the patience of the Association in reading my lengthy paper that I will not occupy your time now at any great length, but will simply refer to a few points that come to me and that deserve to be touched upon.

Dr. Burr referred to the fact that there was periodicity in the insane manifestations in the male as well as in the female. He also referred to the fact that there are male insane persons as well as female. We all admit that. Dr. Burr does not mean that periodicity in the insane manifestations of male patients is as regular as it is in the female, where the periodicity has a direct relation to the menstrual function. I am not disposed to take any issue with Dr. Burr, or anyone else, as to the expediency of sterilizing insane women. I am not ready to recommend it. I am not one of those who believe that all insane women should have their ovaries removed in order not to procreate, nor am I ready to say that the testicles of a man should be removed in order to unfit him for procreation. I took no such position in my paper. I believe the operation was justifiable in the cases reported—primarily, on account of the local pathological changes, and, secondarily, because it was useless to do a minor operation which would still leave the patient susceptible to future outbreaks of insanity. In my cases the question of sterilization was purely hypothetical, and had no practical bearing. I am glad Dr. Burr has referred to Dr. Christian's claim to priority in his researches upon the relations of Bright's disease to insanity, and when my paper is printed it will be found to note the work done in the asylum in Michigan. One of my assistants is now writing upon this question, and will give full credit to Dr. Christian.

I am a little dissatisfied with the expression of Dr. Reed about patients being "incarcerated" in an asylum. I do not think it is a proper expression to use.

Dr. King emphasized the importance of early operation in these cases.

Dr. Ross and several others have said that Dr. Manton and myself, to whom they referred in a very complimentary way, should do this work alone for a long series of years until we establish principles, and that until then none others should follow. I do not agree with that at all. I believe every man who is competent to detect and make a diagnosis of local disease in women, and who is competent also to say whether a woman is insane or not, and who can reason from cause to effect, should do this work. It is not altogether pioneer work. We are not the first ones who have engaged in this work. I do not claim any priority or anything in the nature of its being pioneer work, as Dr. Manton precedes me several years in this field, but we have

endeavored to do this work systematically, and to faithfully report what we have done.

It has been said by several of the speakers that we are treading on dangerous ground. I would like to know what is meant by that expression. If to take the responsibility in all cases that are presented to us—I am not speaking now of the general principle, I am speaking of individual cases; any case which may involve the life of an individual—is dangerous ground for the physician, I take that responsibility and I stand on that dangerous ground. I do not agree with the statement that because some of these patients may die as a direct consequence of the operation that therefore the operation is not justified, or that I go too far because somebody raises some other objection, just as is done by some gynecologists and by a number of alienists. I do not believe that anyone who is competent has a right to stand by or set an ideal and let things go on as they have gone on until the ideal is reached, and not in the meanwhile give these women, who are suffering, a chance. I am willing to take that responsibility and to stand on that "dangerous ground," and I do not believe any of you, placed in the same position, would hesitate to take the same responsibility.

EXTRA-UTERINE PREGNANCY.

By EDWIN RICKETTS, M.D.,
CINCINNATI.

The classification of this lesion by Heywood Smith seems to me the simplest and most satisfactory. It is as follows: 1. Pre-ruptured stage. 2. Ruptured stage. 3. Post-ruptured stage. I accept the theory that the primary rupture is, in the great majority of cases, tubal. Let that be as it may, it does not change the treatment. The diagnosis of extra-uterine pregnancy previous to rupture I do not accept, for it is always extremely uncertain. It is always unfortunate for these cases to go on to the third month or later before the primary rupture takes place, for then hemorrhage is liable to be sudden and profuse, and the resulting shock is more profound than when the first rupture occurs previous to the third month.

In a case recently under my observation, a lady of twenty-one years of age, married for eighteen months, whose menstruation had been regular until eight weeks before, was seized with colicky pains six weeks previous to my first visit. The pain was very severe at times, and her menstruation—using her own words—had hardly left her for a day. Large doses of morphine had been administered by her physician to control pain. There was a history of gonorrhœa in the husband that he supposed was cured six months previous to their marriage. The shreddy menstrual discharge of the patient rather excited the suspicions of the mother, and she said to the daughter that it looked as though possibly she might be pregnant. On my first visit I found a firm and tender mass within the pelvis, especially on her left side. I was at a loss to know what was the matter, and expressed myself that it was one of two things, either an abscess or an extra-uterine pregnancy. The abdomen was opened and a ruptured tubal pregnancy was found on the left side, with disorganized placental tissue and blood-clot. The history and

the conditions found led me to think that this pregnancy had not existed for more than eight weeks. Her recovery was satisfactory.

This is the earliest operation for extra-uterine pregnancy that I have made or seen. Up to the time of her first attack of pain, six weeks previous to my first visit, she was in seemingly perfect health, and from that time on until the operation was performed pain was the only thing that inconvenienced her. There was nothing in the condition of the breasts and nipples that would corroborate the diagnosis. The cervix was slightly soft; other than this there was no symptom that caused me to suspect that extra-uterine pregnancy existed. The majority of these cases rupture into the peritoneal cavity, and it is in this class of cases that hemorrhage is so often severe and disastrous. Other cases of rupture confine themselves to the broad ligament, extending downward outside of the peritoneum, and these are the cases that may go on for a longer time. The cause of the primary tubal rupture is the thinning of the site of the placenta, and the walls of the tube never thicken very much; while in the cases confined to the broad ligament there is a temporary safeguard thrown around the sac by the thickened ligament walls. In simple tubal pregnancy, where the tear extends into the peritoneal cavity, the rupture is more easily induced by some slight exertion, such as stooping or working about the house, than in those cases where the laceration extends into the broad ligament. Mr. Tait claims that we can have tubal rupture at not more than five weeks, which may cause death.

If there is anything to be gained in the treatment of extra-uterine pregnancy by electrolysis, it seems to me that the time is in the pre-ruptured stage. Electricians are not able to diagnose these cases in the pre-ruptured stage any more frequently than the operators. If the sac and its contents are acted upon by electrolysis, it cannot do any good after rupture has taken place. While the diagnosis of the pre-ruptured stage is in most cases impossible, yet the peculiar symptoms following the primary rupture are definite enough to advise exploratory incision as an aid to diagnosis. In the case reported, in which the rupture was into the peritoneal cavity rather than into the broad ligament, I am sure that another attack of pain followed by hemorrhage would have proven very disastrous, for the reason that the patient resided nearly two hundred miles away, and I could not have reached her until much valuable

time had been lost. As it was, I had her come into my private hospital quite soon after my visit to her, and did not take the chances of another hemorrhage.

Without exploratory incision how are we going to distinguish between broad-ligament rupture and intra-peritoneal rupture? Statistics show that more than the majority of the cases rupture into the peritoneal cavity, and for this reason exploratory incision at the hands of competent men should be resorted to in every one of those cases where symptoms of hemorrhage (be it in the broad ligament or in the peritoneal cavity) are present. I do not think that we have reason to differ from the views of Goupil on prognosis, who said: "It is but too true, I fear, that we are authorized in saying that all the cases of *intra-peritoneal* hemorrhage arising from extra-uterine pregnancy end in death; in fact, all the cases that I have quoted have terminated in death." "It has taken place in a few hours or days, although death has been delayed for six months." "Such cases are exceptional."

If hemorrhage exists in any part of the body, stop it, or, if by negligence pus results from this hemorrhage, evacuate it as soon as possible. Electrolysis will not destroy the fetus in the pre-ruptured stage without adding unjustifiable risks, nor will it stop hemorrhage into the broad ligament or into the peritoneal cavity. Then how are we best to deal with this lesion, that under the names of "idiopathic peritonitis," "inflammation of the bowels," "pelvic cellulitis," or "inflammation of the womb," so often kills the patient? My reply is: So soon as the first rupture is detected, to cut with a clean knife, held by clean hands on which are clean nails, and ligate the bleeding tubal artery with clean silk, and clear out the offending mass.

SIX CONSECUTIVE CASES OF EXTRA-UTERINE PREGNANCY, AND THE LESSONS THEY TEACH.

By RUFUS B. HALL, M.D.,
CINCINNATI.

The object of reporting the following cases is to illustrate and emphasize a few facts in connection with the subject of extra-uterine pregnancy which are of vast practical importance to the general practitioner and specialist alike. I will illustrate from clinical facts the difficulty attending a correct diagnosis as to intra- and extra-peritoneal rupture of the sac in extra-uterine pregnancy in the early months of gestation, and the danger to the patient in attempting the same and thus encouraging delay in making the necessary operation in those cases where the rupture has occurred. The first two cases reported have been reported in full, and I only make a short abstract from them to illustrate the points I wish to emphasize in this paper.

Case I.—Mrs. M., aged thirty years, married nine years, mother of three children, the youngest child five years of age. Had an abortion three years ago, and some septic trouble followed, since which time she has had a chronic salpingitis. The patient passed through a normal menstrual period which ceased January 3, 1891. She commenced to flow again February 1st, and it continued for seven days; but it was different from former periods, inasmuch as the flow continued an hour or two, or half a day, and stopped for several hours, and during the whole period she suffered more than ever before during menstruation. From the 7th to the 12th she was quite free from pain, but on the latter date she had cramping pains in the lower part of the abdomen, coming on after a walk of some distance. The patient grew worse until the 15th, when she called her physician, who found it necessary to administer large doses of morphine. He visited her daily for four days, when she appeared to be convalescent and was discharged. She

remained very comfortable until the 22d, when she had an attack of pain, and soon grew very pale and faint and had to lie down. From this date the whole abdomen remained tender to the touch, and on the night of the 24th the patient got out of bed and fainted twice before her husband could get her on the bed. The exhaustion was so very great that she was never able to get up after that date until after the operation was made. March 8th there was first observed an enlargement in the left side of the abdomen as large as the closed hand, which gradually increased in size. March 11th the diagnosis of extra-uterine pregnancy with rupture into the left broad ligament was made by the attending physicians, Dr. Whallon and Dr. W. H. Taylor. On the 15th I saw the case with Drs. Whallon, Taylor, and E. W. Walker, and found the following condition :

There was an enlargement in the pelvis and left side of the abdomen as large as an adult head, which could be plainly outlined, extending diagonally across the abdomen from a point about two inches below the false ribs on the left side to midway between the anterior superior spine of the ilium and pubic spine on the right. The uterus, which did not appear to be much, if any, enlarged, was in front of the mass and pushed to the right side of the pelvis. The pelvic floor was displaced downward to a very marked degree, and the tumor was rounded and felt firm and fixed. Just the condition we have been taught to believe to be one of the best and most certain signs of primary rupture into the broad ligament—a condition in which the patient is supposed to be comparatively safe unless this sac ruptures into the peritoneal cavity. Extra-uterine pregnancy with rupture into the folds of the left broad ligament was believed by all present to be the correct diagnosis. But, as the mass was increasing in size from day to day, it was believed that an intra-peritoneal rupture would probably soon occur therefore an immediate operation was advised. After a few hours for consideration the family decided to have the operation made, which was done the following morning. When the abdomen was opened we did not find a large blood clot in the folds of the broad ligament, as we expected to, but came upon a mass of blood clot as thick as jelly and almost as black as tar. I at once recognized the fact that we had an extra-uterine pregnancy which had ruptured into the peritoneal cavity and had been bleeding for some time. I secured the tube which formed the sac, and tied it off. It was not larger than an orange. The rupture was on the free border of the tube, about its middle. The fetus was less than one inch in length. There were about four and a half pints of blood clot. After thorough irrigation and placing a drainage-tube the cavity was closed. The patient recovered without

incident, and was able to sit up on the twentieth day after the operation. I am very strongly inclined to the opinion that the rupture occurred at the time of her first attack of severe pain on February 15th, and it was the loss of blood that caused her to faint on the 24th. This opinion is strengthened by the fact that on the 8th of March the abdominal enlargement was first observed, which would quite agree with the theory that the bleeding went slowly on from the 15th, the fluid portion of the blood being absorbed, leavingthe organized blood-clot forming the enlargement. If this is true the patient was in the dangerous condition of having a vessel bleeding into the peritoneal cavity for more than a month. There was not a single symptom or sign to lead one to believe that the case was one of *intra-peritoneal rupture*, yet the rupture was free into the peritoneal cavity from *the first.*

Case II.—Mrs. W., aged thirty-three years, mother of two children, the youngest fifteen months old, was referred to me by Dr. Armstrong, her family physician, July 2, 1891. Since the last child was six months old she had menstruated regularly, as had always been her habit; the last menstrual period ceased May 5th. The flow was normal in every respect. She expected the flow June 2d, but it did not appear until the 16th, and it then continued ten days. During the entire period she suffered constant pain, which at times was so severe as to necessitate the use of large doses of morphine. The flow was irregular during the whole ten days, at times free and again merely a show—a condition she had never before experienced. On June 29th she had an attack of pain which was unusually severe, and her husband said that the extremities were cold and the entire body was bathed in perspiration. After that date the severer pains gradually subsided, leaving only a sore, tender abdomen. When I saw her first, July 2d, she was still confined to the bed. Vaginal examination revealed nothing abnormal in the pelvis except slight tenderness to the right of the uterus. Extra-uterine pregnancy was suspected, and on July 7th she was put under chloroform and a thorough examination made, but no definite enlargement could be felt at either side of the uterus. She was able to do the work for her small family from July 8th to 19th. On the latter date she complained of pain in the lower part of the abdomen, which grew worse daily. On the 24th I saw her again, when I could detect an enlargement at the right of the uterus as large as a large orange. She had been having a temperature ranging from 100° to 102° for the past three days. I now believed the case to be one of extra-uterine pregnancy and sent the patient to the hospital, and on the morning of the 27th of July a section was made.

The case proved to be extra-uterine pregnancy which had ruptured some time previously, probably June 29th, and suppuration had taken place. There were about three ounces of pus which was confined in the retro-uterine space by adherent coils of intestine and omentum, and a quantity of blood-clot in the pelvis. The tube containing the decidua was removed with difficulty on account of its friability. The fetus could not be found, yet this is not to be considered strange with a pregnancy of five or six weeks' gestation, operated upon a month after rupture of the tube had taken place. Nature was making an effort to relieve the condition by establishing a communication with the rectum, and the process had advanced so far as to contaminate the pus, which had as distinctly a feculent odor as that of an ischio-rectal abscess. The cavity was irrigated and drained. At the end of four hours the drainage had a distinctly feculent odor, and in twenty-four hours the fluid removed through the drainage-tube contained feces, which continued for fourteen days. The sinus closed October 5th and the patient made a good recovery.

Case III.—Mrs. H., aged thirty years, married eight years, one child six years old, was seen on the 6th of January with her physician, Dr. Van Zant, of this city. Menstruated normally October 16th to 20th. November 25th she had a very slight flow for an hour or so, and again December 16th had a scanty flow for a few hours, followed by severe pain and collapse. Her physician continued to visit her for several days, when her condition improved so much that he discharged the case as convalescent. But in the night of January 5th she had a second attack of pain and collapse. I saw her the following morning with Dr. Van Zant. She was recovering somewhat from the shock, and her pulse could be counted, although it was very rapid. Diagnosis of extra-uterine pregnancy, which the Doctor had made, was concurred in, and the patient was moved to the hospital and carefully watched, and every preparation made to operate at once if she grew worse; but the pulse gradually returned, and by the following morning could be distinctly counted at 140. The operation was made January 7th, at 9 A.M. When the abdomen was opened about one and a half pints of blood escaped which had the appearance of fresh blood, while from the pelvis we removed about one pint of dark, almost black, blood-clot. The sac was tied off, and a fetus two and a half inches in length removed from the blood-clot in the pelvis. The cavity was irrigated and drained, and the patient recovered and went home in the fourth week.

From the examination of the sac it is plainly evident that the rupture was free into the peritoneal cavity at first, and from the

character of the blood-clot I think the rupture occurred at the time of her first attack of severe pain, December 16th; yet the rupture was not extensive enough to detach all of the decidua. When the second attack of pain and collapse came, January 5th, the rent was still more extensive and the hemorrhage more profuse. I am now convinced that I did not adopt the most conservative method in dealing with this case by postponing the operation for the patient to rally from the shock before operating, and would under no circumstances do so again. From the light of present experience I can say that it would have been better for the patient if we had given her *ether* and made the operation at once and stopped the flow of blood. While the patient recovered, she certainly lost more blood by waiting than she would if an immediate operation had been made and we had not waited for her to rally. She also incurred greater risk by postponing the operation than she would have had with an immediate operation under the stimulating effects of ether.

Case IV.—Mrs. W., aged thirty-three years, married nine years; one child eight years old and one sixteen months old. Always menstruated regularly; her last period occurred about the middle of September, 1891. She did not menstruate again until November 15th, when the flow commenced and continued one week, then stopped a week, and again commenced and continued until after the operation was made. December 13th she called her family physician, Dr. Wittkamp, of this city, complaining of cramps in the abdomen. He gave her morphine, and did not see her again until December 21st, at which time she had a second attack of pain, and complete collapse followed. Dr. Miles was called in consultation. At that time there was tenderness over the abdomen. Diagnosis was pelvic hematocele with septic peritonitis. I saw the patient the night of January 9th. At that time she had a pulse of 130 and temperature 103°, with a history of sepsis for fifteen days. She was so yellow that I at first thought it due to jaundice. Examination revealed an enlargement in the left side of abdomen and pelvis nearly as large as an adult head. Vaginal examination showed that the pelvic floor was pushed well downward, so that it was with some difficulty that I could introduce the finger for the necessary examination. The enlargement had the appearance of a tumor that was semi-solid—not so solid as a fibroid, yet more firm than an ovarian cyst. I had no hesitation in saying the case was one of extra-uterine pregnancy, and advised an operation, which was made the following morning. When the abdomen was opened we came upon

a well-organized blood-clot, which was almost black, and had a distinctly feculent odor so pronounced that some of the visitors were obliged to leave the room. There were about four or five pints of blood-clot removed; the sac, the left tube, containing the decidua which was adherent to it, was also removed. The mass was as large as an orange, but no fetus could be found. The cavity was irrigated and drained, and the patient put to bed with little hope that she would survive. There was but little oozing after the operation, but from the first the fluid had that disagreeable feculent odor showing contamination, and on the second day feces came through the drainage-tube, and, after its removal, through the sinus for twenty-one days afterward. The sinus finally closed and the patient made a good recovery.

The rupture probably occurred December 13th, or even before that date, judging from the size of the sac. After making a vaginal examination in a case of this kind with great downward displacement of the pelvic floor, one can easily comprehend how readily the mistaken diagnosis as to the location of the point of rupture could be made. With our early teaching regarding pelvic hemorrhage, how natural it would be to believe that the point of rupture must be in the folds of the broad ligament! In the first case and in this case it felt to the touch as if nothing but the mucous membrane remained between the examining finger and the blood-clot.

Case V.—Mrs. C., aged thirty-two years, patient of Dr. Lash; last child seven years old. She gave a history of some pelvic difficulty for three or four years, and for the past seven months has suffered more than usual, locating the pains in the ovarian regions. She had received the most approved local and constitutional treatment for the chronic salpingitis. The latter part of May, 1892, she commenced to suffer much worse than ever before, locating the pain in the left ovarian region, and was referred to me for an examination June 10th, at which time I found a mass to the left of the uterus the size of a large orange, and the right ovary adherent. From the history and the conditions found upon physical examination I had no hesitation in advising an operation, which was made June 25th at the Presbyterian Hospital. I did not expect to find pus, and so stated before the operation; neither did I expect to find an extra-uterine pregnancy of about the fifth week gestation with an unruptured sac, yet that is what we did find and removed. The opposite ovary and tube were bound down from adhesions and were also removed. The patient made a good recovery and went home at the end of the fourth week.

Case VI.—Mrs. S., aged twenty-four years, married five years, no children, came to my office for treatment July 30, 1892. She gave a history of having suffered from some pelvic difficulty from soon after the time of her marriage. She had been treated by a number of physicians for the chronic salpingitis, which did not appear to be much improved; and for the past two weeks she had been much worse, during what she supposed was her menstrual period, which, however, was a few days late in making its appearance and continued for ten days, the flow being more free than ever before. Upon examination I found the left ovary adherent, and over the region of the right the parts were so sensitive that I could not make out the existence of any mass, nothing more than an indistinct boggy sensation to the touch. I saw her twice a week until the 20th of August, and examined her carefully each time, yet I could not satisfy myself as to the cause of the acute attack through which she was passing. At the latter date I urged an immediate operation, as she was growing worse and her general health rapidly failing. She did not lose flesh, of which she had an abundance, but she looked sallow and was losing strength. She consented to the operation, which was made at the Presbyterian Hospital, August 25th. When the cavity was opened I was very much surprised to find a large quantity of blood-clot, and for the first time realized that we had an extra-uterine pregnancy to deal with. I at once tied off the sac, which yet contained the decidua, and then removed the opposite ovary and tube, which were adherent. There were at least three pints of blood-clot removed. No fetus could be found. The sac was not larger than an orange, and probably ruptured when she suffered the severe cramping pain in the abdomen about July 23d. It was probably not more than a four or five weeks' gestation. The cavity was irrigated and drained, and she made a prompt recovery.

The foregoing six cases are all the extra-uterine operations I have made, and are tabulated in the order of their occurrence. That they all recovered, when we consider the clinical history in the individual cases, must be considered in the nature of a happy surprise; nevertheless, it is none the less gratifying to the operator.

The lesson conveyed in these cases is that we have no certain means at our command of knowing with certainty whether or not, in all cases of extra-uterine pregnancy, the rupture has taken place into the peritoneal cavity or the broad ligament. Especially is this true if the rupture occurs in the early weeks of gestation, as it did in Cases I., IV., and VI. in this report. Therefore, if we treat all of these cases as if we were certain that the rupture was free into

the peritoneal cavity, it will be the best practice. At an early period the vessels are small, the rupture may not be large, and the bleeding may go slowly on inside of the peritoneal cavity for weeks, the more fluid portion of the blood being absorbed and thus deceiving us as to the true quantity of blood lost. In these cases the omentum and intestine become adherent to the blood-clot, closing off the greater portion of the peritoneal cavity from contamination. As the bleeding continues the intestine and omentum are crowded away from the iliac fossa, thus making the apparent tumor which is supposed to be an extra-peritoneal rupture. These cases demonstrate that the adhesions of only four or five weeks' duration are sufficiently strong to compress the clot and depress the pelvic floor to a very marked degree. If we had waited for the absorption of that amount of clot, on the assumption that the hemorrhage was in the broad ligament and, therefore, not dangerous, we would have waited for our patients to die. Again, the fifth and sixth cases show that it is not always easy to make a diagnosis of extra-uterine pregnancy in the early weeks. With these facts before us, after we have made a diagnosis of extra-uterine pregnancy are we to stand idly by, with folded hands, and wait until we are certain the sac has ruptured into the peritoneal cavity, in any given case, before we recommend an operation? This important question is one which should be promptly settled in the professional mind; and the careful study and record of cases by men who are in a position to report them accurately from observation of specimens removed, will soon make the answer decisive. I believe if the case comes under observation before the fourth month it is our duty to give the patient the best chance for her life—and that is an immediate abdominal section.

ECTOPIC GESTATION:

ITS VARIETIES, SYMPTOMS, AND TREATMENT DURING ITS SEVERAL STAGES.

By JAMES F. W. ROSS, M.D.,
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INTRODUCTORY.

During the past few years I have carefully recorded the previous symptoms, diagnosis, and treatment of every case in my practice requiring an abdominal operation. I have at various times put on paper the views I held regarding the symptoms, diagnosis, and treatment of ectopic gestation. In the present paper it has been my endeavor to unite them in one article. In perusing the literature of the subject I endeavored three years ago to systematize the symptoms by tabulating all the cases relating to the subject recorded in the periodicals within my reach. The paragraphs that especially attracted my attention while reading the views of different authors were marked, and many of them are embodied in the present paper. I have been forced to adopt this method in order to support or criticise the views of others and to enable the reader to judge for himself.

It has been said that if a man dies and leaves behind him one undying thought or deed, he has accomplished more than the large majority of his fellows. When, with the cruel onward march of time, the grim reaper Death shall have laid low that surgical giant, Mr. Lawson Tait, there will remain behind him a deed, a surgical procedure, that will eclipse all other surgical procedures of the present century, that will accord to him undying fame. Barnes, with the voice of a prophet, prophesied the advent of a Tait. Many approved and suggested abdominal section as the only method by which we could hope to save a poor woman rapidly

sinking from the hemorrhage from a ruptured tubal gestation, but they lacked either the courage or the opportunity to act upon their views. Tait possessed the one and soon found the other, and the benefit to suffering humanity in this generation alone has been very great. This benefit reaches further than the superficial observer imagines. By this operative procedure we have had the veil more frequently lifted and have been brought more closely into contact with abdominal and pelvic diseases. Conditions previously almost unknown have been carefully studied. When Tait first said: "When I find my patient in danger of death from conditions within the abdomen which do not seem to be clearly of a malignant nature, but a correct diagnosis of which is impossible, I open the abdomen and at once make the diagnosis certain and a successful treatment possible," he raised a howl of dissent from the profession all over the world. He was abused and misquoted by those who should have waited until they could have investigated for themselves. But perhaps such investigations would have been valueless if carried out in the old routine style, with one finger in the vagina, a sound, and a speculum. The quotation printed in many articles and journals was finally interpreted, "When in doubt, open the abdomen," and I am sure nothing could be much further from the meaning of the original. To-day any Fellow here present will say, "When in doubt as to the nature of a pelvic swelling—and the abdominal surgeon is the man who is perhaps oftenest in doubt—open the abdomen." In this way many a small nodule diagnosed as a fibroid tumor, will prove to be a slowly growing and impacted dermoid; many an enlargement supposed to be a fibroid will prove to be a pus tube with thickened walls; many a case of "pelvic cellulitis" will be found to split up into its elements, enteritis, pelvic peritonitis, salpingitis, and ovaritis, an intrapelvic agglutination so long marvelled at and so long misunderstood; many an old ectopic gestation sac will be found perhaps suppurating and dangerous, and in either event better away—and, in short, many conditions perhaps the least expected will be frequently found.

CLASSIFICATION.

In classifying the forms of ectopic gestation I closely follow Tait and Parry. Ectopic gestation may be tubal or tubo-ovarian, interstitial or tubo-uterine, cornual (developed in a malformed uterine

horn). Any of these may by rupture become intra-peritoneal by rupture into the peritoneal cavity, or extra-peritoneal by rupture into the folds of the broad ligament.

TERMINATION.

INTRA-PERITONEAL.—1. By severe hemorrhage may be either rapidly fatal, or recurring hemorrhage may finally cause death if left alone.

2. Suppuration may occur and by secondary rupture set up fatal peritonitis.

3. Suppuration may produce a fatal septicemia.

4. After rupture the placenta may continue its development (either by transplantation or marginal growth—probably the latter), and the pregnancy may go on to full time.

EXTRA-PERITONEAL.—1. May be absorbed.

2. Fetus may die and may be discharged piecemeal.

3. May be removed at full time.

4. May become intra-peritoneal by secondary rupture.

5. May become changed into adipocere or lithopedion.

PERIOD OF RUPTURE.

Hecker found out of forty-five cases that it occurred twenty-six times in first two months, eleven times in third month, seven times in fourth month, once in fifth month.

I have no positive evidence that, after rupture into the peritoneal cavity and death of the fetus, entire absorption of the product of conception, as well as of the intra-abdominal blood, may take place; but I have seen the clot organized and fibrous on the side nearest the peritoneum, and believe that it would have entirely disappeared if the centre of the clot had not suppurated. I have operated upon and drained another case in which the tube ruptured into the folds of the broad ligament; the woman bled through the drainage-tube for three or four months. She made a good recovery, and is now about to be confined in the natural way. No trace of the old gestation sac could be found a year after operation. In another, from whom I removed a fetus at full time, a sac fully three-quarters of an inch thick entirely disappeared, and no trace of the old trouble can be discovered by bimanual examination.

I am satisfied that rupture into the broad ligament does occur, because the case mentioned in the note above was different from all the others on which I have operated. The gestation was certainly in the broad ligament, and reminded me much of that form of broad-ligament fibroid that lies low in the ligament toward its broad base and that cannot be removed with safety. I believe, however, that this form of rupture is much rarer than the intra-peritoneal. Complete absorption frequently takes place in these cases after operation has been advised and done, as in my case; and advised and refused, as in many of the cases reported, for the purpose of staying pelvic surgery in its march of progress.

Tubal pregnancies are equally frequent on either side. A tubo-uterine gestation that is delivered by the natural channel without a rupture of an intervening wall cannot be properly classed as an ectopic gestation. Parry mentions one such, and says that "a portion of the ovum has occasionally been found in the uterine cavity, while the rest was in the cyst of the tube." I am not yet convinced that ovarian pregnancy—an impregnation of the ovum through the wall of the Graafian follicle—before rupture of the Graffian follicle, has ever taken place. It seems unlikely that the spermatozoa, after their long travel up the uterus and through the Fallopian tube, would force their way through the wall of the only Graafian follicle containing an ovum prepared for impregnation. Of course, stranger things may happen. The proofs adduced have not been sufficient to convince me. The cases have not been distinctly separated from the tubo-ovarian variety, in which the Graafian follicle always ruptures previous to impregnation of the ovum. The occurrence of such a variety is a matter of little importance. Spiegelberg give the following points in one case that he saw: (1) absence of ovaries; (2) ovarian tissue in the sac wall; (3) the ovum connected with the uterus by the ovarian ligament; (4) the tube appeared to be just as it usually appears when accompanying larger ovarian cysts.

The abdominal variety, mentioned by some authors, may exist, but it will always be impossible to prove that the gestation was not originally tubo-ovarian or tubal, and that it became secondarily abdominal. If the placenta will grow, as it undoubtedly will, on bowel wall, I see no reason why it should not originate on bowel wall. Abdominal pregnancy is, therefore, to my mind, like ovarian

pregnancy—possible, very probable, but not yet proven. Until 1825 the possibility of ovarian pregnancy was generally admitted, until Velpeau, after examining four specimens of alleged ovarian pregnancy, asserted that in three of them the ovum was not situated within but upon the surface of the ovary. The sac of every case of true ovarian pregnancy must consist of ovarian and not of tubal tissue at all points. Barnes admits that ovarian gestation may occur, but does not positively assert that it does occur. A case reported by Dr. Dyce of a patient who carried an abdominal gestation for eight years, and in whose abdomen only one ovary was found after death, proves nothing. I have seen two cases in which but one ovary was present, as proved by abdominal section, and there was no evidence of any previous operation having been performed through abdomen or vagina in either case.

Gestation in an ill-developed uterine horn—the cornual form of ectopic gestation, as I have called it—is rare, and it may be readily mistaken for tubal gestation. Virchow gives a test by which the two forms may be readily differentiated from one another. If the round ligament is found on the outer side of the enlargement we have a cornual ectopic gestation. If the round ligament is found on the inner side of the enlargement we have a tubal ectopic gestation. If the sac has not ruptured, and the cyst can be readily drawn through the abdominal incision, and a pedicle can be readily tied, we have to deal with a pregnancy in an ill-developed uterine horn. Of cases of pregnancy in a rudimentary horn or bifid uterus about thirty cases have been collected, twenty-three of which ended in rupture in the first six months, three in lithopedion, and in four laparatomy was performed. One case is recorded in which the child remained thirty years in the rudimentary uterine horn. In one case Bandl found a pregnancy in a uterine horn that had no vaginal communication. The pregnancy must have originated by a fecundation from spermatozoa that travelled from the tube on the opposite side through the abdominal cavity. No marked corpus luteum could be found on either side.

Interstitial pregnancy may have a curious ending. The case of Maschka was one with such a termination. The patient died, and at the post-mortem examination it was found that rupture had taken place both into uterus and abdomen, the placenta and head of fetus lying in the abdomen, and the body of the child was born

per vaginam. Cases of interstitial pregnancy generally rupture later than those of the tubal variety—that is, about the fourth month. Rupture generally occurs at the placental site.

Bandl records the case of a lithopedion of the size of a hazel-nut. Early rupture must have taken place, and the fetus at that early age, instead of becoming absorbed or originating suppuration—acting, in fact, as it usually does—took on the chemical change necessary and became a lithopedion. The microscopical examination of the tissues of an encysted fetus showed the internal organs shrunken but with their anatomical features preserved. Needle-shaped crystals have been found scattered through the body.

A pregnant uterus has been found in inguinal, crural, and umbilical hernial sacs; but these, not being cases of ectopic gestation, require no more than a mere mention in this place. In twenty-three cases of multiple impregnation, Parry says that two had both of the ova outside the uterine cavity, and in twenty-one intra- and extra-uterine pregnancy were found. Haydon recorded a case in which an encysted fetus of eight weeks and a recent fetus of six months were found in the abdomen of one woman. Both children had been carried to term, one extra-uterine and the other intra-uterine.

CAUSES OF ECTOPIC GESTATION.

1. Malformations of the internal genital organs. 2. Occlusion of the inner end of the Fallopian tube. 3. Pressure on the tube or obstruction of its lumen by fibroid tumors. 4. Gonorrheal or other salpingitis. The first cause requires no further comment. The second cause mentioned has been experimentally proven by Nuck, who tied the inner end of the tubes of bitches subsequent to copulation. The third cause can be readily understood without further comment.

The fourth cause requires a closer study. Some believe that in the normal condition the ovum is always fertilized in the uterus and that the spermatozoa cannot travel up the tube. Others believe that the spermatozoa, like trout swimming up stream, can easily overcome any ciliary action or current, and that they can readily travel up the tube; but they also believe that the ovum requires the ciliary current to move it, a passive body, onward. In either case the destruction of the cilia would be disastrous. My own

belief is that the spermatozoa can readily travel through the tube in spite of the cilia of the tubal epithelium, but that the cilia are essential to the transportation of the ovum from the ovary to the uterus. In the chicken the spermatozoa wander far up into the oviduct, notwithstanding the presence of ciliated epithelium, and fertilize the eggs long before the shell is formed. My views on this point have undergone some change. Gonorrhea is by far the most frequent cause of salpingitis, and it is, therefore, the most frequent cause of ectopic gestation. The production of ectopic gestation can only be scientifically explained by a pathological or developmental change. It has been stated that the condition was more frequently found in hard-working women than in the indolent and well-to-do. The poor certainly leave the lying-in chamber at too early a date, and thus are more exposed to pelvic inflammations than those who can afford to rest longer after confinement. The poor rarely rest at all after miscarriages, and they work just as hard during menstruation as they do at any other time. Gonorrhea is more prevalent among the working class.

As a result of tubal inflammation a period of sterility generally supervenes between a normal and an ectopic gestation.

Nuck's experiments prove that the spermatozoa reach the interior of the tube and fertilize the ovum there. Tait does not think that these experiments were conclusive, because he holds that no Fallopian tubes exist except in the higher order of mammals that have assumed the upright position. I have made sections of the Fallopian tube of the heifer. Any of these sections might readily be taken for sections of the human Fallopian tube. The bitch, the cow, and the ewe undoubtedly have Fallopian tubes. The sections of the uterus of the heifer cannot for a moment be mistaken for those of the Fallopian tube of the same animal.

Other influences besides that of hard work must be considered. Ectopic gestation is found more frequently in multiparous than in primiparous women. There are certainly more multiparous than primiparous women alive at the present time, therefore ectopic pregnancy should occur most frequently among the greatest number. Again, the greater the number of children born the greater the number of cases of puerperal salpingitis, and more children are born to the multiparous than to the primiparous women. Parry states that in ten years several thousand women became the mothers

of illegitimate children in one of the Philadelphia hospitals, and that not a case of ectopic gestation occurred among them. This was used by him as an argument against the frequent occurrence of ectopic gestation in unmarried women. It cannot be used as such. Ectopic gestation often proves fatal to unmarried women, but a physician would scarcely have the hardihood to brand the girl as immoral unless he could obtain a post-mortem examination to verify his opinion before filling in the death certificate. A celebrated unmarried lady died suddenly in a large city recently. I know that she died of rupture of a tubal pregnancy, as verified by a post-mortem examination, but I should not hesitate to wager that her death certificate was not filled in "ruptured ectopic gestation;" and, further, cases rarely enter a lying-in hospital before they are six or seven months pregnant, and, as rupture of an ectopic gestation generally takes place about the twelfth to fourteenth week, such cases would not be found in the wards of such an institution. In only six cases out of one hundred and sixty-four did fatal rupture occur after six and a half months. The influence of age on the production of this condition has been looked into. It is of little importance, but is a matter of interest. The age at which ectopic gestation most frequently occurs is from twenty to thirty years. The youngest recorded case was fourteen years old, the oldest was forty-seven. One or two curious occurrences might be mentioned here. Kœberlé reports a celebrated case. He removed the body of the uterus from a patient and left the uterine appendages. A fistulous track remained, and through this she became subsequently pregnant. Lecluse records a case of celebrity. He had a patient on whom a Cesarean section had been done. She became pregnant, and the product of conception escaped through the old uterine opening into the abdominal cavity. The placenta became attached to the intestines.

In taking up the consideration of this subject, a plan similar to the following might be followed:

A. Before rupture.	B. After rupture, or the period of rupture up to term.		C. At term.	D. After term.
Symptoms:	Intra-peritoneal.	Extra-peritoneal.		
1. In tubal variety. 2. In interstitial 3. In cornual.	1. Severe hemorrhage rapidly fatal, or recurring hemorrhage and fatal if left alone. 2. Suppurating primarily or secondarily. 3. Proceeding to term. 4. Death of fetus and absorption.	1. Absorption taking place. 2. Death of fetus, and discharge piecemeal. 3. Proceeding to term. 4. Secondary intra-peritoneal rupture.	1. Fetus alive. 2. Fetus dead.	1. Suppuration and discharge of fetus piecemeal. 2. Change into adipocere or lithopedion.
Differential diagnosis:				
Simple cyst of ovary. Dermoid cyst of ovary. Dilated tube from other causes. Small pedunculated fibroid. Double uterus.	Abortion. Poison. Tumors. Normal pregnancy.		Ovarian cyst. Fibroid. Normal pregnancy. Other abdominal tumors.	Ovarian cyst. Fibroid.
Treatment:				
1. Electricity. 2. Puncture. 3. Abdominal section.	1. Expectant. 2. Operative.		1. Child alive. Operative. Expectant. 2. Child dead. Operative. Expectant.	1. Operative. 2. Expectant.

SYMPTOMS.—*Before rupture.* That ectopic gestation may produce symptoms that will enable the careful physician to diagnose the condition before rupture can no longer be doubted. I remember one case in which this was quite easily accomplished. A lady was away with her family enjoying a summer holiday. She had not had a child for eight or ten years. I could obtain no history of any pelvic inflammation, but she may have had some slight attack of tube trouble without being aware of it. Her physician was away from home. While at her summer residence she was suddenly taken with what at first appeared to be her menstrual period. She had missed one or two months, but had no other symptoms that would lead her to suspect that she was pregnant. The hemorrhage continued and became alarming. Dr. Sutton, of Pittsburg, the well-known gynecologist, who was enjoying a holiday in the neighborhood, was called in to see her. On making an examination a rounded, smooth, movable mass was felt down in the cul-de-sac of Douglas, the uterus was found somewhat enlarged but empty, and a diagnosis of ectopic gestation was made. The patient was

immediately sent home, and my friend Dr. Temple was called in to see her. He asked me to see her in consultation. We found the condition described by Dr. Sutton in a note accompanying the patient. Dr. Temple opened the abdomen some days later and found a movable tube dilated with an ectopic gestation. It was the most beautiful specimen of this condition I have ever seen, and the only specimen I have ever seen before rupture. But there are two sides to every question. I diagnosed a case as one of ectopic gestation some time ago, and it proved to be one of blood cyst of the ovary. Another case I would have diagnosed as ectopic gestation had I not felt the ovarian ligament with such ease that it could not be mistaken. The woman had intra-uterine hemorrhage, and was sent to me in consequence of the hemorrhage. She was supposed to have a piece of retained placenta. On opening the abdomen I removed a small cyst of the ovary. The hemorrhage ceased and the woman has been quite regular ever since. The diagnosis of ectopic gestation before rupture is easily made, but is not so easily verified. Only one out of three of the cases I have seen suffering from uterine hemorrhage and movable mass in the cul-de-sac of Douglas has turned out to be a case of ectopic gestation; they were all, however, cases requiring abdominal section for their cure. An operator may diagnose a dilated tube, but until he has opened it with a lance or trocar he is not aware of the nature of its contents; so that the diagnosis of unruptured ectopic gestation is not complete, even after the sac is outside of the body, until the tube or sac has been opened. I have elsewhere given the symptoms before rupture, as follows:

History of labors. In most cases there has been a considerable period of sterility preceding the ectopic gestation.

History of tubal or pelvic disease. This will usually have been present. The history often shows that the patient has had a bad miscarriage some years before, or else a supposed recent miscarriage.

Menstrual history. The patient may perhaps have missed a month, or a period has been anticipated, scanty, or delayed a day or two. Irregular discharges of blood have then begun and at times have been so severe as to require plugging. These hemorrhages may come on two, three, or four times a month. In some they will be almost continuous. This discharge, together with the

passage of decidua, may make the patient assert that she has had a micarriage.

Pain. Some have no pain; others have dysuria or frequent desire to micturate, a desire to strain, a feeling as if something was coming down. Pains may be paroxysmal, like labor pains, or like the pains of a miscarriage, and they may be accompanied by a gush or discharge of blood.

Breasts. Some have shooting pains in the breasts. Breasts may feel hot; they may tingle and feel full. Milk may be present.

Nausea. Evidently not a reliable symptom.

Other feelings. Patient may believe herself to be pregnant, or the reverse. Such feelings cannot be relied on.

Examination. The vagina may be of a purplish color. The cervix is perhaps soft and patulous. The uterus may be pressed forward or backward, to one side or the other. An irregular swelling that feels like no other swelling, neither like a pus tube nor ovary, that feels knotty and boggy, will be found in its neighborhood. Sometimes this mass may be smooth, rounded, and freely movable. Some say the tumor may pulsate, but other pelvic enlargements also give a sense of pulsation to the examining finger. No placental souffle can be made out at this early period, even with the stethoscope in the vagina. A woman who has a pelvic mass and elevated temperature, and who says that she has had a recent miscarriage, should be closely questioned regarding the supposed miscarriage. These are frequently cases of ruptured ectopic gestation. I have seen several of such cases.

Hemorrhage from the uterine cavity has frequently an extra-uterine cause. This extra-uterine cause may be ectopic gestation, pus tube, small ovarian cyst, or cystic disease of the ovaries, heart disease. Hemorrhage from the uterus, with an extra-uterine pelvic mass, does not, therefore, necessarily indicate ectopic gestation. This hemorrhage may be entirely absent in cases of ectopic gestation. Pain may indicate rupture of the tube and its accompanying hemorrhage, or rupture and hemorrhage may occur with scarcely noticeable pain that is likely to attract the patient's attention, but it is not severe. This pain is of very great importance. The woman has been practically a "well woman" until it set in. There is no evidence or history of recent gonorrhea, though there may be of old infection; the woman has had no miscarriages; she has had

no intermittent attacks of pelvic inflammation; but while progressing well, though barren, she suddenly, in the midst of health, becomes an ill woman. Ectopic gestation is the only disease that will produce this condition. The pain is often supposed to be caused by sweeping the house, doing a day's washing, straining at stool, and a hundred-and-one other causes physiologically and pathologically unexplained, but it will be found by the abdominal surgeon to be due to the presence of an ectopic gestation.

I have divided the symptoms of this period into those accompanying the three varieties of the disease—namely, tubal, cornual, and interstitial. In the interstitial form the symptoms simulate normal gestation very closely, and nothing may arouse suspicion as to the true nature of the condition until the shock of an intra- or sub-peritoneal rupture occurs. If the rupture takes place into the uterine cavity the uterus will empty itself in the usual way. In the cornual variety the patient suffers from pain. In my list of cases I record one; the uterus was bicornate, and I have no doubt that the cornua ruptured about the third month. In this case the menses did not cease until after the onset of pain and the occurrence of hemorrhage into the peritoneal cavity. She was then confined to bed for two months, and when she began to go about she was "large with child," as she expressed it.

Stress has been laid by one writer on such absurd details as the following:

Pain. May be absent. May be felt only on examination. May be paroxysmal. May be continuous. May occur during coition.

Vaginal examination. A mass felt about the size of the probable gestation, of rapid growth, extremely sensitive, pulsating with placental souffle. Giving ballottement about the fourth month.

I am myself the culprit. Before having any experience with this disease I wrote a library paper on the subject, and on looking over it I find the above solemnly recorded. There is nothing to be gained by too great a division of symptoms, but there is a great deal to be gained by a word picture that will indelibly stamp itself on the mind of every student of medicine. In reporting cases of ectopic gestation the following details should always be given: Age. Married or single. Number of labors. Date of last labor. Menstrual history. History of irregular hemorrhages. History of pain. A record of the result of the vaginal and abdominal exami-

nation. Other symptoms. Record of treatment. Result of treatment. Period at which operation was done. Nature of operation. Result. If these cases were recorded in some such systematic manner we could form a better estimate of the correctness or incorrectness of the diagnosis. I have noticed, in tabulating these cases, that in many reports the most essential features have been omitted. If we analyze the symptom "pain" we find some difference of opinion. My own view is that the excruciating pain only accompanies rupture of the sac. In some cases the patients suffer mere discomfort, for which they remain in bed from the very first. The pain in such cases may never be suddenly increased. If the patients have little pain it has been supposed to indicate rupture into the broad ligament, but I have operated on one case in which the patient had her abdomen full of blood and was well able to walk around all the day previous to the operation, suffering no pain. Whether rupture occurs in every case or not is a question not yet settled. Tait removed six quarts from a distended Fallopian tube. One would, therefore, suppose that the continuance of a tubal pregnancy without rupture is not an impossibility.

We now come to consider the symptoms of rupture or the period of rupture and the progress of the case to term. I think Parry was evidently mistaken concerning the symptoms of rupture. After enumerating the following symptoms, "Characteristic pain located in the hypogastrium or one iliac fossa, of the most severe character, producing collapse more or less profound, with or without syncope; pains paroxysmal in character, with violent exacerbations, with a bloody discharge from the uterus," he says: "The existence of ectopic gestation should always be suspected." And further goes on to say: "If symptoms of abortion supervene with the discharge of decidua, or *if the phenomena of rupture of the cyst follow the symptoms just enumerated*, it is the duty of the woman's medical adviser to treat her as if she were carrying an extra-uterine child." What are the symptoms just enumerated, if not the symptoms, well recorded, of rupture of the gestation sac? I would say that the symptoms of rupture generally are: sudden, violent, unbearable pain, anemia, shock. The patient may not know that anything is wrong with her. She may go out to do a day's shopping, be seized suddenly with pain, become anemic, fall down in a faint, become

bathed in cold perspiration, with cold hands and feet, speak with difficulty, become unconscious, and die on the spot or in a few hours. Other cases are confined to bed from the first with what is frequently supposed to be inflammation. They may rise from bed and then the pain may become suddenly severe. Perhaps they go to the closet to have a movement of the bowels, and are suddenly taken, while straining, with pain and faintness. They are then put back to bed with what is supposed to be another attack of inflammation. After a few days a rise of temperature may occur and peritonitis supervene. This may prove rapidly fatal, or the clot may become shut off by adhesions and the patient may gradually emaciate. We can then diagnose suppurating hematocele. Sometimes several days will intervene between the attacks of severe pain and faintness. Dysuria and retention of urine may occur at this time. They may suffer from tenesmus and a good deal of flatus. One patient complained of what was supposed to be a dyspeptic pain. Sudden faintness came on and she died in thirty-six hours. Post-mortem examination revealed the rupture of a six weeks' ectopic-gestation cyst. The sensation of sudden rupture has been noticed in several cases. I ruptured one ectopic-gestation sac while making the examination, and was hurriedly called back into the house from the front gate as I was about to leave, and I found the patient in a very alarming condition. Three days later I removed the ruptured ectopic-gestation sac. If the case passes four and a half months without rupture, rupture is not likely to occur. But very few, if any, escape rupture. Hemorrhage takes place at different periods of time, and by this fact we are able to explain the stratified clot so often found.

Distention of the tube may perhaps cause peroxysmal and cramp-like pains, but, strange to say, when filled with water, blood, or pus we have none of these excruciating pains so often found accompanying the rupture of an ectopic gestation. Rupture of a pus tube will, however, give rise to a similar pain and similar collapse. Barnes thought that the escape of blood was due to an overflow through the tube; Tait thinks it due to rupture of the tube; Price and myself think that it is due to a breaking away at the imperfectly sealed fimbriated end of the Fallopian tube in most of the cases observed. If a patient consults her physician and complains of uncomfortable pelvic feelings accompanied by irregular discharges of blood, and also thinks that she is pregnant, he should

insist on making a vaginal examination. Spasmodic pains may occur that are altogether different from the pains of rupture of the sac. They resemble miscarriage pains and are caused by the attempt of the uterus to expel its contents—the decidua. This decidua is usually thrown off at the period of false labor.

After rupture the symptoms will vary according to the termination of the case. Suppuration may set in and the symptoms will then simulate those of miscarriage followed by septic inflammation. The temperature rises. I place more reliance on the temperature as an indicator of the onset of suppuration than on the pulse. The pulse rises also, but not so rapidly. A mass is felt above the pubes, and this usually increases gradually in size, and as the patient becomes emaciated the mass can be readily made out. It is generally tender and has a distinct fluctuating wave passing through it if it has been left for some weeks unopened. Suppuration may occur in the centre of the clot poured out by the tubal rupture, after it has become largely organized. This pus may escape into the general peritoneal cavity and cause general purulent peritonitis. I have reported one such case. If no suppuration occurs the fetus may escape into the abdomen and go on to full term. The fetus may die and become absorbed. Fetal heart-sounds will be heard in due time. Fetal movements will be felt. Placental bruit will be discovered. Ballottement may then be made out; the patient, in fact, will present the signs of pregnancy, but the uterus will be found to one side of the mass, with a patulous os and a body about the size it reaches when filled with a three months' gestation. Decidua will probably be from time to time extruded. Contractions of the sac may simulate the intermittent uterine contractions accompanying normal pregnancy. The fetus may die at any time before term and the symptoms of pregnancy disappear. The breasts may diminish in size, the abdomen flatten, and menstruation reappear. If suppuration begins the patient becomes feverish and begins a long and dangerous illness, the fetus is extruded bit by bit, and the patient is much weakened and exhausted by the long-continued discharge. Tait believes that the only cases in which the child is permitted to reach a viable period are those in which the rupture takes place into the folds of the broad ligament.

Unusual intensity of the placental bruit and fetal heart-sound should demand a very close examination of the patient. This is

Parry's observation. If the os is patulous, as it usually is, the fundus can be readily reached by giving the patient an anesthetic and passing the finger through the cervix. Thinness of the abdominal walls is just as likely to occur in cases normally pregnant as in cases of advanced ectopic gestation.

We now have to review the symptoms as they occur at term. Some symptoms of pregnancy will in all likelihood be present; labor comes on usually at this time. This is the rule. Premature and delayed labor are the exceptions. This is spurious labor. It may last for but a few hours; it has been known to last over several years; two cases have been recorded in which the pains recurred at intervals for seven and ten years respectively. Accompanying these pains is usually a hemorrhagic vaginal discharge. These pains are supposed to be due to contractions of the uterus. In one case these contractions were noticed at intervals during gastrotomy for the relief of the condition. These rhythmic contractions occur in normal pregnancy, and are held by Tait to be an almost unfailing sign of pregnancy. Edema of the extremities may be present, and, indeed, all the usual uncomfortable train of symptoms due to intra-abdominal pressure. The bowels have been obstructed in such cases by pressure on the rectum. The secretion of milk may only continue for a few days after spurious labor at full term; in some cases it is prolonged. It is said that the mammary glands become active after the spurious labor, just as they do after normal labor. In the case of Penrose, given in the table, the secretion of milk continued for three months after the operation. (I have seen the secretion of milk very abundant three years after the birth of a baby that died suddenly when only a few day old; in this case the menses did not appear during that time and there was no evidence of any pelvic disease.) The uterus at term is not found larger than it would be at the fourth month of pregnancy. The cervix becomes softer than in the earlier months, and more patulous, but the absence of this soft cervix and patulous os is not evidence of an absence of ectopic gestation.

We now come to the last set of symptoms, those met with after the spurious labor is over. The child now dies. Why it dies we do not know. Probably some degenerative change begins in the

placenta and this causes death. Many a physician has been misled by what he supposed to be fetal movements, and has recorded cases in which fetal life was supposed to have continued long after term. Such cases are not worthy of belief. We have no evidence that intra-uterine pregnancy occurs until after the term of an ectopic gestation has been reached.

The liquor amnii may now become reabsorbed. The fetus may undergo decomposition or change into adipocere having the appearance of soft wax; or, if calcareous salts are deposited upon its surface, it becomes a lithopedion. Cartilaginous and bony deposits have taken place in the membranes after the absorption of the liquor amnii and after the membranes have been pressed and moulded around the fetal form. Absorption of the small bones and soft parts of the fetus may also take place. The abdomen diminishes in size as the liquor amnii becomes less in quantity. This is an important point in the diagnosis. Among the cases tabulated this symptom was not carefully observed in one case and an erroneous diagnosis was made (see case). It is a symptom rarely absent. Jonathan Hutchinson was the observer who laid great stress upon the value of this sign. Very rarely the liquor amnii may increase in quantity after the death of the child.

If the fetus becomes encysted the mother may live for years, but, as a friend of mine expressed himself on this condition, "she goes around as if she had a dynamite cartridge in her abdomen, liable to go off at any time." She is uncomfortable. Peritonitis may attack her at any moment or suppuration may set in. Suppuration in such cases is very exhausting and dangerous to life, and many cases die after a long and lingering illness.

Differential Diagnosis.—Errors of diagnosis are frequently due to defective investigations of the histories of cases. Before rupture an ectopic gestation must be distinguished from: 1. A small cyst of the ovary or broad ligament, whether hematoma, dermoid, or simple cyst is immaterial. 2. A dilated tube, pyo-, hydro-, hemato-salpinx. 3. A small pedunculated fibroid. 4. A double uterus. I was able to diagnose one case as cyst of the ovary by noticing the tense band running from the enlargement to the uterus and recognizing it as the ovarian ligament. With any of the above-mentioned diseases we may have any of the symptoms of ectopic gestation in its early stage. Colicky pains, morning

sickness, milk in breasts, irritation of bladder and rectum, and a mass felt *per vaginam* may all be present.

Among the cases I have tabulated I find one reported by Terillon. The usual period of sterility was absent in the case, and the trouble began shortly after confinement and ended in a general peritonitis. Hemorrhagic discharges then began from the uterus. After vaginal examination, hematocele due to ruptured ectopic gestation was diagnosed. At the operation a double hematosalpinx was found. In another of the tabulated cases a hydrosalpinx was found on one side and tubal pregnancy was found on the other. In another a tumor of the ovary was found on one side and an ectopic gestation on the other. I find the case of one woman recorded as follows: She had never been pregnant, had never missed a period, no irregular hemorrhages are mentioned, but she was confined to bed for three months, her pain increased, peritonitis came on, and at the operation a suppurating ectopic-gestation cyst was found. A happy shot at a diagnosis was made in a case recorded by Smuts. His patient missed a month and felt a small tumor in the lower abdomen. She had bearing-down pain on exertion; no sickness at the stomach; the mammæ were slightly enlarged and tender, but with no changes in the areola. On vaginal examination a tumor could be felt, feeling like the uterus after the expulsion of the placenta. On opening the abdomen small fibroids of the uterus were found, together with a two or three months' ectopic gestation. Deaver's patient had gone two weeks over her time for menstruation and had no subsequent vaginal discharge. She had bearing-down pains and the symptoms of intestinal obstruction. The abdomen was prominent and tender. She vomited stercoraceous matter. At the operation an ectopic gestation was found. It had ruptured and the peritoneum was filled with a very large quantity of blood.

In the table of errors that I have collated we have two cases of ovarian cyst, one of hematosalpinx, one of supposed intestinal obstruction, one of ovarian tumor with a twisted pedicle, and one of hematocele, all simulating ectopic gestation in the early stages. We have one case of multilocular disease of both ovaries and one of parovarian cyst simulating ectopic gestation in the later stages. An ectopic gestation is generally, after it has become fixed by adhesions, more closely connected with the uterus than an ovarian tumor is. An ovarian cyst frequently causes suppression of the menses.

From encysted abscess of the broad ligament or pelvic peritoneum I consider that it is impossible to diagnose suppurating ectopic gestation, unless the two former have good proof of a puerperal or other definite origin; this will be made out from the history. There is certainly a difference in the feeling of a small ovarian cyst and an unruptured tubal gestation. Each is freely movable, each feels tense and fluctuating, each may feel hard and nodular if the cyst be dermoid; but the tubal gestation feels longer and not altogether like a small cyst of the ovary. The absence or the presence of the ovary on that side would be a guide to the physician. A cyst of the tube is generally sausage-shaped and irregular, and is longer than an unruptured tubal pregnancy.

It will be noticed that many points given as characteristic features for purposes of differential diagnosis of extra-uterine pregnancy cannot be relied upon. Symptoms of pregnancy are at times wanting. The uterus may be displaced laterally, to the front or back, though I have found the position just under the pubes the most frequent. Ovarian cyst may be very intimately connected with the uterus, so much so that it has been taken for myoma time and time again. Broad-ligament cyst is very closely connected with the uterus. From my experience in abdominal surgery I am convinced that no man can be positive of his diagnosis of intra-pelvic disease until it is confirmed by abdominal operation. I saw a surgeon, who had made many a correct diagnosis, open the abdomen of a patient for the avowed purpose of removing a dead fetus some months past term. The dead fetus proved to be a simple ovarian tumor with many adhesions and very thick walls.

Many lay great stress on this matter of diagnosis, but it is really a matter of small consequence to the patient whether she has a hematosalpinx, a pyosalpinx, a hydrosalpinx, an extra-uterine pregnancy, an abscess of the broad ligament, a parovarian cyst, an ovarian cyst, or an ovarian abscess, because, in order that she may be speedily cured with the least amount of danger to herself, she must submit to laparatomy.

In every woman's hospital the counterpart of two cases I once saw side by side can be found. One of these was a young girl, operated on a week before for the relief of an abscess of the broad ligament, and almost well; the other was the mother of a family,

emaciated, hectic, and worn out with seven months of suppuration in an abscess of the broad ligament that had not been opened early and drained, but had been left to Nature. Her groin was riddled with sinuses. Such cases should raise loud murmurs of dissent against delay.

Ballottement is said to be obtained between the second and third month. This is the veriest nonsense, and is one of those text-book mistakes handed down to us. If a surgeon hangs his diagnosis of a case of ectopic gestation on ballottement he will be very frequently in error.

As to the use of the sound for diagnostic purposes, I believe that it can safely be used if the patient is suffering from continued and unaccountable pain and continuous or irregular hemorrhage. The uterine cavity is usually an inch or two longer than usual, but it may only be of the normal length.

Barnes, in speaking of retroversion of the gravid uterus, says that it usually gives rise to retention of urine, which ectopic gestation never does. This is incorrect. Several cases have been recorded of retention of urine accompanying ectopic gestation. I have known of two cases of normal pregnancy mistaken for ectopic gestation; one of them was seen by myself, and the other by a confrère well accustomed to examine *per vaginam*. In each pregnancy was diagnosed; in each a protrusion like an enlarged tube was distinctly to be felt at the cornua of the uterus in the normal position of the tube; in each there had been a missed period and there had been an irregular discharge of blood; in each there was pain, and in each ectopic pregnancy was diagnosed, and in one immediate operation was advised, and in the other I held myself in readiness to operate on the intervention of serious symptoms. In the first case the patient had a very natural miscarriage, probably the result of so much manipulation, and, fortunately for her, before the proposed operation was done for her relief; and in case No. 2 she was delivered of a healthy child. It is needless to say that, after so much fuss, she did not ask me to wait upon her. In case No. 2, from an examination made when the pregnancy had advanced further and had not ruptured as expected, I convinced myself that she had a small ovarian cyst or dilated tube as well as a normal uterine pregnancy.

The diagnosis from what has for years been known as "pelvic

hematocele" is a matter of importance. If we look carefully into the history of the cases recorded in the literature of a few years ago as pelvic hematocele accompanying abortion, and said to be due to the regurgitation of blood through the Fallopian tubes, we are led to believe that these cases were really cases of ectopic gestation. One of these cases is given as follows by Barnes: Age 42. Last labor three years ago. She missed two menstrual periods. Metrorrhagia then came on, and she was supposed to have aborted. She had pain in the hypogastrium. Was not confined to bed. She had difficulty in micturating. Constipated. Jaundice. No marked fever or hectic. A firm, rounded tumor is found that rises to the umbilicus. It is continuous with a firm swelling passing into the left iliac region. Cervix soft and close behind the symphysis pubis. Behind the cervix is a large, rounded, firm, but not a hard swelling, projecting partly into the vagina by depressing its roof. The sound enters three and one-half inches. In this case and in several others reported there is no positive evidence that abortion really occurred. The symptoms of these cases are usually so vague that the real cause of all such hematoceles must be a matter of doubt, unless the abdomen of the patient is explored. Two cases have been reported of rupture of varicose veins in the pelvis of women suffering from ectopic gestation. Barnes, in his attempt to differentiate between ectopic gestation and pelvic hematocele, fails to do so. I have taken the points as he has given them, and the following is the result:

Hematocele.	*Ectopic Gestation.*
1. May cause retention of urine.	1. Not known to cause retention of urine.
2. There may be a history of pregnancy.	2. Often is a history of pregnancy.
3. May follow or accompany abortion.	3. May simulate abortion.
4. Have external hemorrhages.	4. Have external hemorrhages.
5. Will follow sudden severe symptoms.	5. Will follow sudden severe symptoms.
6. Uterus less enlarged than with ectopic gestation.	6. Uterus enlarged.

The last symptom would be identical in each case if the hematocele followed miscarriage. It is therefore not to be wondered at that for years writers failed to separate into two what was really but one disease.

I find in places through the literature of the subject such remarks as: "A diagnosis of hematocele other than tubal pregnancy was made after careful consideration of the symptoms." Upon what differential diagnostic symptoms the writers make up their minds I do not know and cannot find out. When Joseph Price has said that he has seen in his own city six cases of ectopic gestation in four weeks, the disease cannot be very uncommon. It is not nearly so rare as those who do not practise abdominal surgery would wish us to believe. The condition must always have been equally common and unrecognized, or else it is increasing at an abnormal ratio. The critics of the views held by most laparatomists say that "at the present time there is a disposition to refer all cases of hematocele to rupture of an extra-uterine pregnancy sac." If they would insert the little adverb "nearly" before "all," making it read "nearly all," we could accept the statement. A varicose condition of the pelvic veins is often met with post-mortem. The enlargement appears to be more frequent on the left than on the right side. The same condition has been noticed in monkeys. Monthly congestions would predispose to rupture of such varicosities. If one of these veins should rupture the best treatment would be to cut down and tie the ruptured vessel.

The thermometer is of no use in making a differential diagnosis between ectopic gestation and pelvic hematocele.

It must be remembered that a woman may present symptoms similar to ectopic gestation during a severe attack of dysmenorrhea.

The old-time cellulitis, that now splits up into its elements, enumerated in another part of this paper, must be mentioned in order to differentiate it from ectopic gestation. In pelvic cellulitis we may have a delayed period, or it may have been missed altogether. Irregular hemorrhagic discharge, severe pain and evidence of profound ill health, a mass in the neighborhood of the uterus, may all be present. No decidua will be found, and the other symptoms of pregnancy will probably be absent. In ectopic gestation, after rupture the feeling to the examining finger is a boggy, irregularly hard and soft mass, while in pelvic cellulitis the mass is usually smoother and of an evener consistence.

At term, owing to a sudden change in the position of the parts felt *per vaginam* during the spurious labor, rupture of the uterus has been diagnosed. This mistake should not occur.

One author, who is or was enthusiastic over the use of electricity in the early months, endeavors to aid the practitioner in making an early diagnosis. He says that after the third month intermittent uterine contractions can be felt in cases of normal pregnancy, and not in cases of ectopic gestation. But pregnancy frequently occurs without the accompanying intermittent uterine contractions, and a distended bladder and subperitoneal fibroids also produce rhythmical contractions. He says, however, that the veriest tyro could not make such a mistake. And yet I have seen a very able and brilliant surgeon open the abdomen of a young girl for the removal of a supposed myoma, conclude that she was pregnant and close her up, and then, eight days after receiving her solemn statement that such a condition as pregnancy was impossible, go back and take out a large myoma. Errors have been made in times past by the ablest teachers—men quite as able to diagnose by palpation and percussion and auscultation as any modern teachers. After the death of the child the diagnosis of the condition is frequently very difficult. The longer the period of time that has elapsed since impregnation the more difficult the diagnosis. The previous history of the case should be gone into very carefully. The history of diminution in the size of the abdomen after a spurious labor at term, accompanied by a show, the empty uterus as proved by a sound, the previous changes in the breasts and their disappearance, all point strongly to the existence of an ectopic pregnancy. The occurrence of fetal movements, the woman's belief in her own pregnancy, the absence of the usual changes in the cervix, and the occurrence of false labor pains, are not now to be relied on.

After the death of the fetus, if there is no inflammatory reaction, menstruation usually returns.

Treatment.—The treatment of ectopic gestation will vary according to the period reached by the pregnancy. Before rupture, to escape the dreaded knife, electricity has been advocated. Many of those who advocated its use a few years ago have had the manliness to come forward and acknowledge their "change of heart." There is, as the Yankee said, "nothing to it." If I thought a near relative had an extra-uterine pregnancy I should not invoke the services of the dispenser of the lightning fluid, but should send for the best abdominal surgeon available, and request him to be ready for immediate operation. I should wire him to come on im-

mediately, and should be very uneasy until after his arrival, when I think my usual peace of mind would be restored. I should then feel that I had the safest remedy easily within my grasp, and would feel very grateful to Tait, who urged us and taught us how to carry out such a safe procedure.

In all cases accuracy of diagnosis is of importance. It is of more importance in discussing the virtues of electricity than in discussing the virtues of surgical procedures. In the one case the disease is hidden, in the other it is unearthed. One advocate of electricity in this stage of the disease says: "If in the early months a woman has missed one period, has had irregular discharges preceded by cramp-like pain in the abdomen, has had certain of the rational symptoms of pregnancy (such as nausea, etc.), and on careful examination an oval-shaped tumor is found posterior to or to one side of the uterus, we may always think with a great degree of certainty of tubal pregnancy." By what I have already said I think it is very clear that there is not "a great degree of certainty" about such cases. You will also find it further stated that if a thorough examination under an anesthetic be made, the diagnosis will be rendered more certain. I have not found my doubts in these cases diminished by any such procedures. The many cases spoken of by the advocates of electricity, in which a positive diagnosis of ectopic gestation before rupture has been correctly made, do not appear in the literature of the subject. Of course in each case a verification of the diagnosis must be superadded. Unless this is done no estimate of the scientific value of the electrical treatment can be arrived at. It has been said that at least electricity can do no harm. Tait has said that the great bulk of the utterances in this direction may stand well in society discussions, but that they will not stand the test of bedside utterances. Thomas says: "Electricity has these great advantages: if an error of diagnosis has been made, this remedy will do no harm; if the diagnosis be correct, experience proves it to be sufficient in its effect." But he does not add the method of ascertaining the correctness of the diagnosis. I have even heard one or two of the ardent advocates of fetal electrocution cast a doubt on the correctness of the diagnosis of Mr. Tait after he had removed the gestation sac by laparatomy. They are hunting around for placental tissue. But they do not hesitate to make a positive diagnosis themselves without

even making any opening into the abdomen, and with no other aids but the bistoury (the bimanual under anesthesia, if you like) and the sound.

I will not urge the danger of rupture of the sac wall after the use of electricity as an argument against its use. I will not urge the danger of subsequent suppuration of the sac as an argument against the use of electricity. Either may occur without its use, and either may be as readily treated by subsequent laparatomy as if no electricity had ever been used. The case related by Dr. Janvrin, and supposed to militate against the use of electricity, proved nothing, because the patient suffered from undoubted rupture of the sac before the current was applied, and it is now generally admitted that the current should not be used in such cases.

Cases are on record of growth of the placenta subsequent to the death of the fetus. Whether this death of the fetus be the result of electrocution or not is not a matter of importance. The subsequent growth of the placenta is not due to the use of the electrical current, but this growth may take place in spite of the use of the current. Many of the cases related to prove the value of electricity are given after the following style. My friend, Dr. Hanks, relates one. "Patient twenty-six years of age; last child five years ago. In April, 1887, she had nausea and frequent desire to urinate. She lost some blood and passed what was supposed to be decidua. She continued to lose a little blood, her pain increased, and a piece of decidua again passed. There was no elevation of temperature. Tubal pregnancy was suspected, and electricity was employed while the patient was under chloroform. After the third dose the breasts became flabby and the nausea ceased, but there was much hemorrhage for two weeks. Recovery took place in July." Many a woman has just such symptoms as the above and has no ectopic gestation. The breasts became flabby, but no mention is made of their previous hardness. It is well known that even milk may be found in the breasts of virgins, and that women have gone through pregnancy without the least development of the mammæ. Gusserow, in a series of cases, endeavored to prove that pyosalpinx could be diagnosed by a rise of temperature, but Mr. Tait found the temperature test in his cases an utter failure. Such an observation as that just related of my friend, Dr. Hanks, I consider as incomplete, and, being incomplete, I consider it of no value in establish-

ing the virtue of the treatment carried out when used in other cases of undoubted ectopic gestation. Barnes, after relating the first case in which electricity was used, says: "Of course, it may be doubted whether there was really a tubal gestation."

One author who advocates the use of electricity comments very unfavorably on the use of ergotin injection beneath the skin, because he thinks the ergotin may produce dangerous contractions of the sac wall. The contractions due to electricity should be quite as dangerous, but in his zeal he overlooked this fact. One gentleman has recently said: "We cannot accept the dicta of men who are ignorant of the manner in which electricity is used, or of those who condemn it without a trial." This is the old style of supposed argument. It is not the form of argument I would wish to advance in favor of the use of electricity. The favored few are again brought to the front—the few who know all about electricity. So many doubts enshroud these cases of unruptured ectopic gestation that it is surely not asking too much if we ask the women to die shortly after their cure by electricity, so that we may verify the correctness of the diagnosis. Fibroid tumors and ectopic gestation go hand-in-hand. They are spirited away from the scalpel, their best friend, by a fickle and renewed acquaintance, electricity. The sample case I have recorded as treated and cured by electricity, presenting, as it does, certain symptoms supposed to point to a positive diagnosis of ectopic gestation, is scarcely, after all, in danger of the knife, because an abdominal surgeon would not consider the symptoms definite or severe enough to warrant the performance of a laparatomy.

The prophecy of Barnes may be here related with profit: "The question is often discussed whether it is not advisable to perform laparatomy with a view to removing the embryo and effused blood, to check the bleeding by tying the Fallopian tube on the proximal side of the sac, and cutting away the sac. I do not imagine that this will be successfully carried out in cases of early tubal rupture." A dread seemed to be entertained that the patient would suffer much pain after ligation of the sac. Parry then said, about the same time: "He who would subject a woman, under these circumstances, to the dangers of a gastrotomy, would have to possess the courage of a McDowell."

Treatment of patient if rupture has occurred. The patient should

be put to bed and every effort be made to rally her from the shock. Stimulants should be administered by the mouth or hypodermic needle. Ergot should be given to stop the hemorrhage, and morphine to ease the pain and reduce the sensibility of the peritoneum. All straining efforts should be avoided; if the bowels are to be moved, they should be moved by enema, so that the rectum can be evacuated with the least possible effort. Warm packs should be used, in the form of warm blankets and hot-water bottles. The situation should be to some extent explained to the patient, so that she will be the more willing to carry out the physician's directions —directions that may otherwise appear to her superfluous. Sudden death will in some cases occur either without or in spite of treatment. One woman was found dead in bed beside her husband, although she retired in perfect health the night before. After the patient has rallied, the physician should at once urge the necessity of a consultation upon the family. To be treated at such a consultation as I was on a recent occasion is gratifying. The patient was the sister of a physician. Her medical attendant sent for me when he recognized the gravity of the case. I diagnosed, with his intelligent assistance, rupture of an ectopic-gestation sac and commencing suppuration in the clot, and advised operation. The family was shocked. The husband, an intelligent fellow, at once took in the situation. I left the house not knowing what the outcome would be, but giving them twelve hours in which to make up their minds. The brother was not satisfied, but the husband took the matter out of his hands and at once had the patient removed to the hospital. Early next morning I opened the abdomen in the presence of the family physician and the brother, to whom the intra-abdominal condition was a revelation, and cured my patient. The family physician told the husband that if the consultant's advice was not acted upon he would retire from the further treatment of the case.

The operation in such cases is easy. There is no easier abdominal operation, to the experienced abdominal surgeon, than the removal of an ectopic gestation that has ruptured during the first three months. Operation may seem very terrible to the novice, but the experienced operator, who knows how to grasp the uterine end of the tube to control the hemorrhage, who is not frightened by the large quantity of blood that already fills the pelvis, will bear me

out in what I have just stated. Coolness of head, experience, and rapidity of fingering are essential to success. The mortality of the operation in experienced hands is small. I am now speaking of the early operation; and this small mortality at this early stage is the most forcible argument against delay. All attempts to destroy the ovum through the system of the mother have failed; puncture of the cyst is dangerous; the use of the aspirator has the same objection; the injection of narcotics has given no good results; the dead fetus is liable to produce suppuration; the remaining sac is a constant menace to life; the recurrence of hemorrhage is to be feared, and the woman is started on the shortest road to convalescence by one line of action, and by one line of action only, and that is abdominal section and removal of the tube and gestation sac. It is difficult to determine when a woman is so far gone on her road to the grave as to preclude the possibility of averting a fatality by operation. Women will sink, from loss of blood during miscarriage and subsequent to labor, to the very verge of the grave without dying. In these apparently hopeless cases an experienced operator, with some clean absorbent cotton and a pocket-case containing one or two artery forceps, a scalpel, an aneurism needle, and a piece of silk, should not hesitate as to the course he should pursue in the face of such an emergency. Frommel records a case in which the tube was tied and removed, and the blood was, by force of circumstances, left behind in the abdomen, and yet the patient recovered.

Removal of the gestation sac *per vaginam* has been tried once, and is not likely to be tried again. It is a pity to see so many argue against operative procedures. If a woman is bleeding to death from a small piece of retained placenta or an accidental or unavoidable hemorrhage, the men who are opposed to operative procedures for hemorrhage from ruptured tubal pregnancy do not sit passively by and let the patient die; they act, and act quickly. Tracheotomy for the relief of a patient suffocating from the presence of a foreign body in the trachea is not more urgently needed than an abdominal section for the relief of a patient bleeding to death from the rupture of an ectopic-gestation sac. I admire the writings and sayings of that Nestor of our gynecological world, Robert Barnes. He shook himself free from the traditions of the past and took sides with the younger and bolder men. The acri-

mony with which war was waged against those who had the courage of their convictions and proceeded to operate, was a disgrace to an intelligent profession. Barnes and the lamented Parry were a great source of comfort to many of those in favor of operation by reason of their moderate utterances. Mr. Tait was the first who, with a fixed purpose, performed the operation, and he was to some extent indebted to the importunity of Mr. Hallwright, who called him in consultation.

The length of the incision is a matter of small moment. It should be large enough to expedite and not retard operation. The removal of both tubes and ovaries I do not believe to be desirable, unless the patient demands it. There is now living a patient from whom I removed an ectopic gestation, and in whose abdomen I left the opposite ovary and tube. She then became pregnant and was delivered of a healthy child. Two years ago I was forced to remove the other tube and ovary. The child born in the interval is the only one living out of a family of seven or eight; all of the others died in infancy. The patient is now in excellent health.

Of the one hundred and seventy-four cases of rupture of the sac recorded by Parry, none recovered. If the patient survives the period of rupture, and operation is permitted, I believe that, unless urgent symptoms arise, nothing should be done until the child is viable. We may in this way save both mother and child at a later date.

The statistics of Harris show that there is only one chance in nine of saving the mother, and one in two of saving the child, if primary laparatomy be performed at this late period. I see only one reason why primary should be more dangerous than secondary laparatomy, and that is the existence of placental circulation in the former. While a pupil with Mr. Tait I saw him remove the whole placenta at about the fifth month, but the patient died. This hemorrhage from the placenta is a very alarming and dangerous complication. But I do not believe that the placenta has any more tendency to separate before than after the death of the child. If the operation can be carried out without disturbing the placenta the prognosis should be as favorable to the mother as if the placenta was inactive. I have operated on one case two weeks after term and the death of the child. I passed into the sac a large drainage-tube, through which I washed out the cavity twice a day with gallons of

water. I arranged a rubber sheet with a piece of curved tin attachment to fit close to the wound, and with this the water was readily carried away from the bed. During my absence my father passed into the sac a medium-sized Ferguson's speculum and washed out through this. Large pieces of placenta came away, and at times there was some bleeding. When bleeding began I discontinued the washing for the time being, and found that it was caused by a too forcible disturbance of the adherent pieces of placenta before they were ready to come away. The sac wall was very thick, but became entirely absorbed. The patient is now a strong and hearty woman, but has never been pregnant since. To prevent hemorrhage from the cut sac at the time of operation it was found necessary to use clamp forceps and then to pass a shoemaker's suture about one-quarter of an inch from the margin all the way around the aperture. Septicemia and hemorrhage are the two great dangers of the operation at this period. It has been said that if the navel string is cut short and dropped, and the sac closed, the patient will have a safer convalescence. "If this be carried out," Tait has remarked, "we must be ready to reopen the sac if symptoms of suppuration set in."

Parry has compared the results of primary operations with the results of the cases when left to Nature; he has also compared the results of secondary operations with the results of the cases when left to Nature. This is not a wise comparison. We should compare the results of primary with the results of secondary operation, and we should compare the results of both primary and secondary operation with those of the results of the cases when left to Nature. He made the mean mortality for primary and secondary operations combined 52 per cent. The mortality of the cases left to Nature was also 52 per cent. Surgical interference in those days did not, therefore, save a single life; but the art of surgery can do more for us to-day. Few operators operate on one such case, and very few have the good fortune to operate on more than one.

A woman is never free from danger while she is carrying an encysted or dead fetus. Inflammation or suppuration may come on at any time. Subsequent pregnancy may cause suppuration in an old ectopic-gestation sac. When inflammation comes on, the patient suffers from pain and tenderness; she becomes feverish and, if pus forms, a hectic flush appears on the cheeks, emaciation

begins, and the patient goes down hill very rapidly. If the child die before term there is no good reason why it should not be removed by means of the knife, but it is a disputed question whether we should interfere before suppuration sets in or not. The mortality of the cases that suppurated and were opened by the aid of the surgeon's knife through the abdominal wall was only 9 per cent. Fistulous openings and long and troublesome sinuses may remain if these sacs are allowed to open of their own accord. If operation is required in the period subsequent to rupture and before full term I think it will be found better to leave the sac and drain it. The removal of the sac cannot, in some cases, be accomplished, and if it is large and adherent its removal increases the risk.

If an interstitial pregnancy be definitely diagnosed, delivery might be accomplished by tearing through the partition wall after dilating the os uteri.

If intra- and extra-uterine pregnancy occur simultaneously the labor generally progresses normally. My friend Dr. Strathy has recently had such a case. He operated immediately after labor, but unfortunately came down on the placenta, and the patient bled to death. I believe in such cases delay would be advisable if no urgent symptoms arise demanding operation. The desire to save the other child should not influence us in deciding our course of action, and I think we should not impose the extra risk of immediate operation on a woman who has just completed one delivery.

Incision of the vagina at term has been done, and both mother and child have been saved. But vaginal or rectal operation should give way to the abdominal. Rectal incisions should never be practised, if we are to judge from the unsatisfactory progress of the cases that rupture, after suppuration, into the rectum. Secondary rupture of the sac may occur, and the liquor amnii then escapes into the abdominal cavity. This happened in my case at term, and the woman suffered severely from shock. At times a mother may die from this secondary rupture, and the life of the child must then be taken into consideration. In such circumstances a rapid delivery should be accomplished on the dead woman if there is a single ray of hope that the child may still be alive.

The details of the operation are not required here. In my own case, mentioned above, I opened down to the abdominal cavity in

the usual way, found that the sac had ruptured and that the abdominal cavity was full of liquor amnii of a brownish color. I then opened boldly into the sac from the rent downward, being careful to avoid the bladder, and put on a clamp forceps on each side of the opening to check the rather profuse hemorrhage. The edge of the placental side could be clearly noted on one side, but the bulk of the placenta was fortunately attached behind. I then passed my hand, grasped a foot, and delivered. There was some little difficulty in removing the head through the incision. The child was macerated. The cord was tied and left hanging from the opening in the sac and the abdomen. The abdominal cavity was then washed out very thoroughly, and the rent in the sac, together with the greater part of the freshly made incision into the sac, was closed by suture. The edges of the sac opening now left were stitched to the lower angle of the abdominal wound and the remainder of the abdominal wound was closed. A large glass drainage-tube was inserted in the sac. In such cases at term the cyst wall should always be left behind, according to the best of our knowledge at the present time. The day may come when we will enucleate the sac just as we enucleate a broad-ligament cyst. It has been stated that the liquor amnii is very poisonous to the peritoneum, but it did not produce any trouble in my case, although the fetus was macerated.

If the patients refuse to submit to operative interference after the death of the fetus they may carry the child for years. I saw one such case in the wards of the late esteemed Prof. Braun von Fernwald, in Vienna. Billroth removed the fetus, but the patient died. The fetus had become converted into adipocere and had preserved its original form. Some of these cases may, as one author has put it, "become loathsome to themselves and to others, owing to the horrible odors exhaled from their skin and breath."

Tait says that "painful micturition, severe diarrhea, tenesmus, painful defecation, tympanites from the escape of gas into the cyst cavity, may come on, and the patient may be left with vesical, vaginal, or rectal fistulæ. I need not," he goes on to say, "go further into this chamber of horrors, as he who wishes may look up the records for himself if he feel interested. My own intention is never to allow a woman to go through this ordeal so long as I have a scalpel, hemostatic forceps, and a good nurse at hand." And I heartily agree with him.

Cases of Ectopic Gestation.

Surgeon	Age	Labors.	Abortions.	Menses.	Irregular hemorrhage.	Other symptoms.	Pain.	Physical examination.	Remarks.	Operation.	Result
Deaver,	...	Last, three years ago.	None given.	Missed two weeks.	Was no vaginal discharge.	Depressed, nausea, vomiting, stercoraceous, hot, collapsed.	Severe bearing down on pressure over abdomen.	Abdomen prominent. Vaginal examination: mass found to left and behind uterus.	Should judge this case was not diagnosed. Diagnosis leaned to intestinal obstruction. Several saw in consultation.	Done at sixth week	D.
Taylor, J. W.	38	.....	None given.	None missed.	Irregular discharge of blood, commencing at a regular period and continuing for two months.	Albuminuria. Felt ill about 4 months before seen.	Pain in right side of abdomen, at last preventing sleep; unbearable.	Swelling of abdomen rapidly increasing. Vaginal examination: tense fluctuating swelling, pushing up the uterus to the left side. Uterus empty.	Ext.-uterine pregnancy not diagnosed, but excluded as there was no amenorrhœa.	Done at fourth month. Tube had ruptured into broad ligament some time before.	R.
Cullingworth,	27	Last, five years ago.	None given.	Missed April to July, 1887.	None given.	Quickened. These movements ceased after the pains. Increased in size at first; then diminished after movements ceased	Had pains like labor pains for one hour.	Abdomen enlarged	Sac found at operation, formed by tubes and broad ligament; liquor amnii gone; umbilical cord gone. Placenta in front, and remov'd without hemorrhage. Sac stitched to wound and drained.	At seven months after pains ceased, or twelve months after impregnation.	R.
Ross, J. F. W.	30	Two; last, five years ago.	.....	None missed.	Loss of blood for one week.	Milk in breasts. Felt lump in lower part of abdomen. Quickened.	Sudden, severe; was then confined to bed for two months, then got up "large with child."	Under anesthetic uterus found to be bicornate with one cervix; decidua scraped away. Uterus empty. Abdomen enlarged to size of full term pregnancy. Parts of child felt. Patient collapsed.	Patient had been in labor for two or three weeks before seen with doctor in attendance. Pain ceased, breasts diminished. Fetal movements ceased.	At nine and a half months; sac drained; placenta left; cord brought out of wound; sac had ruptured before operation.	R.

Hubert,	22	.....	.....	.....	.....	Not given.	Not given.	.....	Died suddenly. Post-mort. showed a tubal gestation cyst that had burst, and fetus escaped into abdominal cavity.	None done.	
Burch,	27	One.	.....	Not given; says pregnancy went to 3d month without symptoms.	.....	.....	Severe abdominal pains about third month; went to full term, then had false labor pains.	.....	Operation eight months after full time.	Done at seventeenth month.	R.
Kemp, E. A.	...	.. ...	.....	None missed.	.....	Symptoms snppos'd to be dyspeptic; faintness.	Pains in stomach.	.....	Sudden faintness. Patient died in thirty-six hours. At post-mortem examinat'n found tubal pregnancy, about six weeks, on right side.	None done.	
Borrilly	...	.....	.....	.....	.....	.....	Pains like labor pains.	.....	Peritonitis. At operation macerated fetus of 6 months' pregnancy found.	Done at sixth month.	R.
Tait,	...	.....	Three supposed.	Went a week over her period for three periods.	Prolonged menstrual period; thought to have been miscarriages	.....	Bent double with pain.	Uterus pushed forward to pubis. A large nodular, boggy mass felt behind it.	Found right-sided hydrosalpinx and ruptured tubal pregnancy on left side.	Operation at third month.	R.
Tait,	24	.....	.. ..	Missed three months.	Not mentioned.	No other symptoms of pregnancy given.	Sudden and violent	.....	Ruptured tubal pregnancy found.	Done at third month.	R.
Tait,	35	One.	Thought three, six or seven years ago.	Missed three months.	Not mentioned.	.....	Sudden. In bed for ten days at a time. Three such attacks.	.....	Ectopic gestation found.	Done at third month.	R.
Tait,	32	One.	One supposed.	None missed.	Thought she had a miscarriage in April. Menses came on in May, but discharge only slight.	.....	Violent pain; most of her time in bed. July 13th collapsed.	.....	Ectopic gestation found.	Done at third or fourth month.	R.

Surgeon	Age	Labors.	Abortions.	Menses.	Irregular hemorrhage.	Other symptoms.	Pain.	Physical examination.	Remarks.	Operation.	Result
Tait,	34	.....	One supposed.	.....	Thought had miscarriage in July, and has had irregular hemorrhage since then.	Very exsanguine.	Severe pain; bent double.	Soft, shortened cervix.	Ectopic gestation found.	Done at third month.	D.
Tait,	44	One.	.....	Missed two or three months.	After ceasing two or three months hemorrhage came on and lasted continuously.	.....	Violent pain. In bed ever since November—that is, from November to January.	.....	Ectopic gestation found.	Done at third month.	R.
Tait,	29	Four; last, two years ago.	One.	Missed one month.	.....	Felt uneasy; a sensation of weight, as if the "womb was coming down."	Violent, sudden, colicky pains, with collapse. Rallied. Had several attacks. Pain returned on rising up.	.....	Ectopic gestation found.	Done at second or third month.	R.
Tait,	31	Two.	.....	.....	....	Obscure early history. Malaise and weakness.	Pain over abdomen and inability to urinate.	.....	Was not thought to be pregnant. Ectopic gestation found.	Done in early months.	R.
Tait,	29	.....	.....	.....	.....	Severe pelvic symptoms.	Pains of severe character in pelvis.	.....	Ectopic gestation found.	Done in early months.	R.
Tait,	27	.....	.....	Missed three months.	.....	Never pregnant, though married 6 years Confined to bed for three months with what was called inflammation of uterus. Emaciated; unable to get about; looks as if had pus in pelvis.	Acute, violent pain on getting out of bed; then confined to bed for three weeks with peritonitis. Had two or three attacks of peritonitis.	.....	Not diagnosed as pregnancy, but supposed to be pyosalpinx. At operation fetal bones found.	Done some months after.	D.
Penrose	32	Four; last, seven years ago.	Two; last, eleven years ago.	.....	Profuse bleeding for thirteen days, coming on after lifting.	No signs of pregnancy except secretion of milk.	Pain sharp in left ovarian region.	.....	Ectopic gestation. Curious secretion of milk lasting for three months after operation.	Done in early months.	R.
Penrose	28	Four; last, one year ago.	.....	Never menstruated since last labor.	Bled profusely two months ago. Shreds passed from vagina.	.....	Great pain in left ovarian region.	.....	Ectopic gestation found.	About third month.	R.

Slocum,	34	Last, twelve years ago.	None.	Menses came on for one day only.	Chocolate colored discharge from vagina.	Pus and blood passed from bowels; vomiting; pain in breast.	Pain after eating. Diarrhea and severe colic, no paroxysmal pain. Dysuria and dyschexia.	Blue vagina.	She thought not pregnant. Ectopic gestation found.	Done third month.	Not given.
Goodell,	33	None; married thirteen years.	.....	Missed two weeks.	Delayed menstrual period. This ceased, and in a week recurred; a third hemorrhage.	After her pain was in bed for few days with soreness. Painful defecation	Cramps in pelvis, with syncope; second attack when delayed flow came on; third attack; then had pelvic colic when getting out of bed; a fifth attack of pain with a bursting feeling and faintness.	Uterus small and pushed forward and to the right by a boggy tumor lying to left in Douglas's pouch.	Diagnosed as ectopic gestation. Operation; hemorrhage after, rather severe.	Done in early month.	R.
Morrison,	30	Five; last, three years ago.	.....	Missed two months.	Hemorrhage from vagina, considerable and continuous.	Colostrum. Areola darkened.	Periodic attacks of pain in lower abdomen; confined to bed.	Cervix soft. Evidence at operation of growth of placenta after death of a two months' fetus.	Previous history of inflammatory trouble.	Done at third month.	R.
Frommel,	32	Three; last, two years ago.	.....	Two weeks over.	.....	....	Severe pain, with collapse.	.....	Patient thought she was pregnant.	Done 6th to 8th month. Blood not removed from abdomen at operation.	R.
Smith,	42	.....	.....	Missed one month.	.....	A small tumor noticed by patient. No nausea. Mammæ slightly full and tender. No change of areola.	Bearing down pains on exertion.	Tumor to be felt, feeling like uterus after an ordinary labor has been completed. Soft os.	Found at operation that she had fibroids as well as an ectopic pregnancy.	Done at second to third month.	D.
Not found	...	.....	One supposed.	Not ceased, but scanty for one period.	Supposed to have have had miscarriage in summer. Hemorrhage came on again, and thought again it was a miscarriage	Anemic.	Expulsive pains; water came away like liquor amnii; very prostrate.	....	Thought herself pregnant again. Ectopic gestation found.	Done in early months.	R.
Tait,	28	Four; last, five years ago.	.....	Missed three months.	Flooding for eight weeks.	Anemic. Looked very ill.	.....	.....	Ectopic gestation found.	Done at third month.	R.

Surgeon	Age	Labors.	Abortions.	Menses.	Irregular hemorrhage.	Other symptoms.	Pain.	Physical examination.	Remarks.	Operation.	Result
Tait,	44	Last nine years ago.	.....	Missed two months.	Not mentioned.	Exsanguinated.	Pains of local peritonitis simulating chronic colitis.	.....	Diagnosed as ovarian tumor with twisted pedicle. Fetus evidently dead several weeks.	Done at fourth month.	R.
Tait,	30	.....	.....	None missed.	Not mentioned.	Never pregnant.	In bed with pelvic troubles for three months; pains increased.	.....	Found at operation suppurative peritonitis with decomposed ectopic gesiation.	Done in early months.	R.
Ross, J. F. W.	38	Seven; last, four years ago.	Three.	Frequently went two weeks over.	Menses occasionally stop six weeks Dark chocolate color, fetid, profuse Commenced Dec. 22d, lasted to 24th. Came on Dec. 28th, lasted to Jan. 4th.	.....	Pains in lifting, coughing, sneezing, dyspareunia.	After examination per vaginam I left the house; hastily called back; patient collapsed.	At operation found ruptured tubal pregn'cy, thought probable hematosalpinx; know was pregnancy. Abdomen full of clotted blood.	Operation done second or third day after rupture.	R.
Ross, J. F. W.	24	.....	She thought so.	Three weeks over.	March 20, 1891, unwell; went for seven weeks, and again unwell June 4th. Taken pains like labor pains and flowing. Thought had miscarriage; collapse. Hot cloths; went to bed; bleeding continued.	No other symptoms.	Pain like labor pain; collapse.	June 30th walked to hospital. Examination found mass. To return two days. Under chloroform a movable elongated mass felt dropping into cul-de-sac—hard, not boggy.	Operation. Abdomen filled with liquid, not clotted blood. Blood grumons. Evidently there for several days.	Operation about ninth or tenth week.	R.
Ross, J. F. W.	31	Five; last, three years ago.	Three.	Ten days over.	Regular to December, since then profuse. June 12, went 10 days over. Severe pain some weeks after. Had to lie down. Discharge copious. Unable to get up since; very weak.	No signs of pregnancy. Case sent as one of probable hematocele or pelvic abscess. My diagnosis was either rupture of ectopic into broad ligament, or uterine pregnancy and fibroid.	Severe; could not sit or stand; came suddenly and simulated labor pains.	Tumor felt in right inguinal region; very tender. Vaginal examination: Cervix up under pubes. Passed sound four inches; went to left. Uterns moved independently of mass.	Mass found apparently in broad ligament, and not removable. Ectopic gestation. Opened and washed out sac, and drained. Hemorrhage at intervals for nearly six months from drainage-tube opening.	About thirteenth or fourteenth week.	R.

Ross, J. F. W.	30	One; last, seven years ago.	Doctor thought she had one this time, and curetted.	Went seven weeks.	July 18th menstruated; then went seven weeks; saw slight show.	Thought she was pregnant. After the curetting temperature went to 103°, pulse 120. Temperature rose suddenly. Violent diarrhea. Peritonitis.	After seeing slight show, taken ill with slight pain in right groin and across abdomen; pain in head and limbs; put to bed; pain increased; went out week after to doctor's house. Pain recurred in three days; severe; in bed; appeared weak; pulse 90 to 120, then up and down; poulticed. Had pains similar to labor pains. Doctor told her she was pregnant.	Large mass extending nearly to the level of the umbilicus; dull on percussion, and fluctuating. Uterus three and a half inches in length, empty, and in the centre of the pelvis, and pressed by the mass back against the sacrum.	Diagnosed as suppurating hematocele. Whether due to ectopic gestation or not, not determined before operation.	Done after five weeks of suppuration. Patient profoundly septic. Washed out clots from abdomen, and removed fetal sac of about twelfth week from among the intestines and unconnected with the tube. Clots in abdomen had become encysted by inflammatory adhesions of the intestines and had then suppurated.	D.
Ross, J. F. W.	28	Married only seven½ months.	.....	Missed five days.	None.	No other symptoms of pregnancy.	Five months after marriage seized with sudden pain, right side, low down in abdomen; went to bed; sent for doctor: cold sweat; in bed one and a half days. Up and around again; recurrence of pain; went to bed again.	Small mass to be felt on right side of abdomen, low down in front of uterus, and apparently between uterus and bladder, not movable or fluctuating.	No similar attack before marriage. Diagnosis obscure thought might be pus tube. Removed patient to hospital to be more closely watched. While there sudden severe attack of peritonitis, and determined to operate at once.	Found secondary rupture of a suppurating semi-organized, old ectopic gestation clot. Purulent peritonitis.	R.
Ross, J. F W.	31	None.	One; last, three years ago.	Missed three weeks.	After missing three weeks had discharge of blood for three weeks.	Temperature and pulse normal until five days after first attack, when pulse was 130, temp. $102\frac{2}{5}°$.	Abdominal pain, uncomfortable but not severe; lasted two weeks. Was straining at stool when sudden, severe pain seized her low down in right side of lower abdomen; crawled to bed, and arising a few hours after, pain recurred. Three attempts to walk; each time pain came on.	Pelvis filled with a mass.	Diagnosis: Ruptured ectopic gestation, commencing suppuration in the blood-clot.	Eighth to tenth week. Abdomen filled with blood, grumous, coffee-ground colored, and stinking.	R.

SYMPTOMS OF FOUR CASES OF SUPPOSED ECTOPIC GESTATION CURED BY ELECTRICITY.

Surgeon	Age	Labors.	Abortions.	Menses.	Irregular hemorrhage.	Other symptoms.	Pain.	Physical examination.	Remarks.	Operation.	Result
Harrison.	20	Two, last, one year ago.	.....	Never ceased, but scanty.	Uterine hemorrhage.	Chills, vomiting, quick pulse, anxious face.	.....	Elastic, movable tumor on right side of uterus. Uterus enlarged.	Ectopic pregnancy diagnosed. Electricity used five times. At second sitting the symptoms improved.	None done.	
Harrison.	31	Last, seven years ago.	.....	Not mentioned.	Hemorrhagic discharge; thought a miscarriage was impending.	High temperature.	.....	Uterus enlarged; a swelling felt to right of uterus, thought to be perimetric exudation, but found to be a somewhat rounded, soft, elastic tumor, tender, not not fixed.	Tubal pregnancy was diagnosed.	Galvanic current was used with a satisfactory result.	
Hanks,	28	Last, five years ago.	.....	None missed.	Lost some blood; passed supposed decidua. Hemorrhage continued, but only slight.	Nausea; frequent urination; no rise of temperature.	Pain increased.	.....	Under chloroform electricity used three times. Supposed to have cured an ectopic gestation. Breasts said to have become flabby.		
Hanks,	...	Three; last, three years ago.	.....	None missed.	Had loss of blood.	....	Pain above the groin.	Uterus pushed to the left by a large tumor to right of it. Not anesthetized.	Electricity used. Pain ceased after the first application.		

Cases with Symptoms Simulating Ectopic Gestation.

Surgeon	Age	Labors.	Abortions.	Menses.	Irregular hemorrhage.	Other symptoms.	Pain.	Physical examination.	Remarks.	Operation.	Result
Packard	29	Five.	.....	Missed two months	Frequent hemorrhages; clots and shreds like decidua; fetid.	Breasts tingle.	.....	.....	Operation proved case to be an ovarain tumor.	Done.	Not given.
Terrillon,	32	Four; last, one year ago.	....	Not given.	Hemorrhagic discharges.	.....	Sharp pain in abdomen, coming on shortly after confinement. General peritonitis.	After examination by vagina a boggy-feeling tumor was felt, and hematocele from ruptured ectopic gestation was diagnosed.	Operation proved case to be double hematosalpinx.	Done.	Not given.
Tait,	...	.....	Not given.	Missed eight months three years ago.	No discharge.	Breasts enlarged. Felt movements.	False labor pains lasted for four hours. Felt as if child was about to pass. Felt the swelling press downward.	Abdomen enlarg'd; Size did not diminish after false pains.	Operation proved case to be multilocular disease of both ovaries.		
Tait,	28	.....	One.	Missed two months, then came on; ceased again two months.	A slight show for one month.	Felt movements.	False labor pains.	After labor size of abdomen increased and did not diminish. Os not patulous.	Operation proved case to be a parovarian cyst.		
Price,	...	.....	.....	Missed one or two months.	Discharge of débris supposed to be decidua.	Morning sickness Milk in breasts. Bladder and rectal irritation.	Colicky pains.	Mass felt to left of uterus.	Operation proved case to be a small ovarian cyst.		
Morrill,	31	Six: twenty months ago.	.....	None missed.	Never missed, but menses irregular. One week before last period expelled what was said to be decidua, and had slight flow again two months after.	No signs of pregnancy given.	Pain in back; was better when lying in bed. Got up, and had vomiting with bearing-down pains, and fainted.	Uterus enlarged and retroflexed Cervix crowded behind the symphysis. A bulging in Douglas's sac.	Recovery not complete. Nearly a year after considerable lump left, likely to interfere with her existing pregnancy.	Not done. Case supposed to be hematocele, and not ectopic gestation.	

NOTES ON THE TABLES.

In reviewing the table presented, you will notice that the period of preceding sterility is well marked in both multiparæ and primiparæ. One case had been married six years without becoming pregnant. In many the history of an inflammation in the pelvis some time previously is to be noticed, and it is natural to suppose that it was at this time that the damage causing the subsequent malposition of the pregnancy was caused.

Looking down the column containing the abortions, you will notice that many of the patients never had an abortion. One was supposed to have had a miscarriage in the summer and then another more recently. Another thought that she had miscarried in April, but the menstrual discharge came on again slightly in May. Another thought she had miscarried and then had continuous hemorrhage after it. Another thought she had had three abortions because she had gone a week over each period and then had a profuse discharge of blood. Several never missed a period. Some had very little discharge, at some periods less discharge than usual. Some had a profuse period and then had a very slight show at the next. Others went only a few days over each period, but had the discharge subsequently at the time that each period was due.

Others missed several menstrual periods and were then subject to the irregular hemorrhages. In one case there had been no menstruation since the last labor, a year previous. She suffered from profuse hemorrhage, with pain on the left side, and the passage *per vaginam* of shreds of decidua. The ectopic gestation in this last case was proved to exist by abdominal section.

In some of the cases no mention is made of the important symptom of irregular hemorrhages. In some the quantity of blood lost was small, but continuous; in others large in quantity, but not continuous. At times it was treacly or of a tarry consistence and of a chocolate color. It was offensive in some cases. In one case there was no vaginal discharge. In one there was no hemorrhage, but the uterine pains expelled a watery fluid like liquor amnii, and yet the patient was anemic and prostrated, and at the operation an ectopic gestation was found to be present. In one case the menses stopped for six weeks and lasted for six weeks. In some cases the expulsion or presence of decidua is not mentioned.

In some cases the patients thought that they were pregnant; in others they felt sure that they were not pregnant, even though they had pains in the breasts. In many of the recorded cases the signs of pregnancy were passed over as if they were of no importance. Movements of the fetus are recorded in two cases in which ectopic gestation existed and in two cases in which ectopic gestation did not exist, but in which some other abnormal condition was present.

The false labor pains came on in some at term and in others before term. The child usually dies after the false labor. The dicidua is usually expelled with these pains, if it has not been previously thrown off. This shedding of the decidua is usually accompanied by a "show."

In summing up the dates at which operation was done in these cases, I find the following:

	Deaths.	Recoveries.
At six weeks	1	0
Two or three months	1	4
Third month	2	8
Three to four months	0	2
Fourth month	0	2
Early months	0	6
Sixth month	0	1
Ninth month	0	1
Twelfth month	0	1
Seventeenth month	0	1

Result not given:

	Cases.
At three months	1
Early months	1

I might have collated a larger number of cases, but could not see that any benefit would result. Enough are presented to form the basis of a critical review of the whole subject.

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DISCUSSION OF THE PAPERS OF DRS. RICKETTS, HALL, AND ROSS.

DR. JOSEPH HOFFMAN, of Philadelphia.—I have a good deal of valuable data to give to the Association, which cannot be dwelt upon owing to the lateness of the hour. I wish to call to the memory of the Association the record of Dr. Joseph Price, which, so far as I know, has not been equalled in the world. He has operated on seventy-nine cases of ectopic pregnancy, with seventy-six recoveries. I take pleasure in showing you a specimen which I removed—a seven months' fetus. The placenta was removed intact. The woman recovered without a bad symptom, and is perfectly well at the present time. Her symptoms were very perplexing and misleading, and I have already given them in the previous showing of the specimens last evening. I have also another specimen to show you—one of Dr. Price's seventy-nine cases. The woman was moribund at the time of operation, and her life was saved by a hypodermic injection of salt water.

A MEMBER.—What per cent of salt was used in the water?

DR. HOFFMAN.—Two teaspoonfuls to the pint.

DR. MCMURTRY.—We have a distinguished physician of this city present with us, and I should like to ask the Chair to invite Dr. Love to contribute three minutes to this discussion.

DR. I. N. LOVE, of St. Louis (by invitation).—This subject is particularly interesting to me. My department is not yours; I am not an infant in the profession, and yet as an all-round specialist I have cruised around in the field as a general practitioner. I have seen several cases of pelvic peritonitis, or appendicitis, as you may call it. I recall one case in particular, a magnificent specimen of womanhood, beautiful as a Diana; she was a widow. She was attacked by that which seemed to be indigestion. I was not her attending physician, but I had known her for years socially. Her usual physician was not within reach, and after hours and hours of suffering, retching, and

vomiting, I was sent for. I found her retching incessantly, almost in collapse, pulse uncountable, temperature below normal. She presented all the evidences of complete collapse. I gave her a hypodermic injection of morphine and atropine. I recalled in this case, as I looked upon her, that three months before I had been called in an emergency of excessive bleeding which accompanied menstruation. She was also exsanguinated at that time, and at this time her condition suggested the former condition. I gave her a hypodermic injection and waited until the result followed, which was reaction. I left her comfortable. A few hours later in the night I was summoned, and I said to myself, This patient presents the appearance of one who is bleeding to excess; but on inquiry I found that she had not menstruated for nearly three months. As I sat there as a general practitioner, I recalled to my mind the case of the magnificent, artistic, the beautiful Adelaide Neilson. I said, Here is a parallel case. I did not act at that time, but I sent for her physician. He did not arrive, and she died within a few hours. Her pulse was 160. Looking back in the light of the post-mortem, I would have managed her case differently. The family physician met me there a few hours later and I requested a post-mortem. He did not know what was the matter; he had been treating her for gastritis. At the post-mortem held we found a ruptured tube with an abdomen full of blood. Were I to have another case I would send for an abdominal surgeon. We do not see many such cases, and unless a post-mortem is made much of the evidence is lost. In this discussion I would like to have special stress laid on the symptoms which necessitate surgical interference. All of you are experts, and you know a great many cases unfortunately fall into the hands of the non-expert, and that when they reach you there is less hope for saving their lives. I trust you will lay stress on the details of the technique of interference, when and when not to interfere, and what are the symptoms which demand interference. As a specialist in another department, I ask for information. I wish this session could last about four hours longer, so that I could listen to the light that can be thrown upon this subject. To me it is most interesting.

[The hour for adjournment having arrived, further discussion was omitted.]

CORNEAL OPACITIES IN FETAL EYES.

By JUAN SANTOS FERNANDEZ, M.D,
HAVANA, CUBA.

Having been honored by this important Association with the title of Honorary Fellow, and knowing that the annual meeting will take place in September, 1892, I deem it my duty to send this modest contribution as a means of expressing to the Association my high esteem.

My professional practice having been always confined to ophthalmology, I have felt it incumbent upon me to select from my special branch of medical science a theme closely related to obstetrics. Accordingly, I have decided to deal with those corneal opacities which occur before birth. I have already given elsewhere similar clinical facts: my first publication having been in 1878, the second in 1882; the third and last one, hitherto unpublished, will constitute the only novelty of this brief communication.

Case I.—J. V. P., of Sagua, Cuba, aged eight years, was brought to me by his parents on May 4, 1877. He was in healthy condition, and no defect save a congenital *white cloud* of the right eye had been detected in him. Careful examination under oblique natural and artificial light revealed a leucoma of a slight bluish tint, much like those occurring after serious attacks of *ophthalmia purulenta.*

The father claims that the opacity was formerly greater. No difference in the tension of the two eyes can be detected by the usual exploration; convergent strabismus is present in the right eye. The parents have no doubt as to the congenital character of the disease.

Case II.—E. P. C., a girl, aged twenty-four hours. I first saw her April 18, 1890. The parents were alarmed because immediately after birth a large white stain was detected in the right eye. The child was quite healthy and in good condition. The mother had been married exactly nine months before. She was thin and anemic before marriage,

and grew worse afterward, the family attributing her weak condition to the effect of "laughing gas" administered by a dentist of Santiago de Cuba, and to her most troublesome pregnancy. Leucorrhea was present during her pregnancy.

Examination proved negative when the eyes were shut, but when open a white opacity was observed; it was diagnosed as a total adhering leucoma. I have not since heard of the girl.

Case III.—J. A. P. G., of Havana, aged six years, was brought to me by his mother on January 25, 1887. She reported that immediately after birth a white spot was detected in the left eye, the right eye being also affected with a stain almost imperceptible. No discharge from the eyes has ever been observed, such as would indicate *ophthalmia purulenta* of the newborn. It was, therefore, certainly established that the leucoma of the left eye and the small stain of the right one had originated during intra-uterine life. The spot in the right eye spared the internal portion of the cornea, through which the red fundus could be seen and a portion of the papilla could be illuminated with the ophthalmoscope. I formerly hoped to be able to perform an operation for artificial pupil, but having lately examined the child, I have given up the idea, the leucoma having assumed the appearance of those resulting from inflammatory diseases and especially of *ophthalmia purulenta neonatorum.*

Ammon, the first author who deals with corneal opacities, believes them due to an embryonal abnormality in the cornea; Torignot attributes them to an attack of plastic keratitis occurring before birth; Steffan thinks they are due to something abnormal in the embryonal cornea resulting in the retardation of development of the crystalline lens, and bases his opinion on a post-mortem which he performed on an aborted fetus presenting corneal opacities.

The strong resemblance between these opacities and those occurring after acute inflammation has impressed upon my mind the idea that they may be the effect of a suppurative process taking place during intra-uterine life. My opinion is supported by a case of *ophthalmia purulenta* in the fetus.[1]

[1] Annales d'Oculistique, xxxvii. p. 66.

NEPHROTOMY AND NEPHRECTOMY SUCCESSFULLY PERFORMED ON SOME PATIENTS FOR MULTIPLE ABSCESS.

By GEORGE S. PECK, M.D.,
YOUNGSTOWN, OHIO.

I DESIRE to present for your consideration and to place upon record the following brief history of a case of renal abscess successfully treated by nephrotomy and nephrectomy.

J. C., aged twenty years; American; occupation, office-boy; family history good; no tubercular trouble. Past history: When six years of age, while playing in a new house, he fell from the second story, lighting astride of a joist in first story, injuring the perineum, causing free hemorrhage from the bladder and suppuration in both groins.

At eleven was kicked by a playmate in the back. Always after that he complained of more or less severe pain in region of left kidney. A few months later he had a severe attack of scarlatina; was ill about eight weeks, having considerable kidney complication during sickness.

At seventeen had an attack of measles which ran more than the ordinary course.

At eighteen received an injury to left leg, which terminated in necrosis or caries of tibia from ankle to knee-joint. Was confined in a hospital some thirteen weeks. During that time he had two operations and a quantity of necrosed bone removed each time.

At nineteen had an attack of non-specific iritis lasting eight or nine weeks. Four weeks of the time he was totally blind.

After regaining his eyesight he was employed as office-boy by the oculist who treated him. During most of the time while in his employ he complained of pain in his back. March 22, 1891, the pain became more severe, especially in the region of left kidney. Had a feeling as though back was swollen on left side. March 25th had a severe chill, followed by fever. High-colored urine. Diarrhœa. Increased pain in back and inability to lie down.

March 27. Admitted to City Hospital; previous symptoms aggravated. Temp. 100°; pulse 80, and presenting marked symptoms of typhoid. The case was diagnosticated typhoid fever, and treated as such some four weeks, the temperature at times reaching as high as 104°; pulse ranging from 72 to 96. During the four weeks patient complained at times of severe pain in left kidney.

April 22 (the thirty-first day of illness). The attending physician detected a fluctuating tumor in left hypochondriac region. I was asked to see the patient in consultation April 25th. After a thorough examination and obtaining the past history, I diagnosticated abscess of left kidney, and advised nephrotomy. Saw patient again the next day. During the preceding twenty-four hours he had passed about two quarts of urine containing a large amount of pus; temperature and pulse normal. Tumor decreased in size, and other symptoms much improved. As the patient was very weak and emaciated, and the contents of the abscess making its exit through the bladder, it was decided to postpone operation a short time.

My term of service beginning May 1st, I called a consultation of the hospital staff, who confirmed my diagnosis.

May 6 (the forty-fifth day of sickness). Assisted by Drs. A. M. Clark and H. A. Zimmerman, and in the presence of the staff, I etherized the patient and made a simple oblique lumbar incision about three and one-half inches long down to the kidney, and packed sponges in the wound around the kidney. I then made an incision about two inches long through the posterior or convex border, and evacuated about three pints of pus. After exploring the cavity for calculi, and finding none, I stitched the sac to the margin of the incision with four catgut sutures; thoroughly irrigated the cavity with a 1 to 4000 bichloride solution; inserted two large rubber drainage-tubes; sutured the upper and lower angle of incision; packed the sac and wound with iodoform gauze, covering the whole with antiseptic dressing held in position by dairy-cloth bandage, and put the patient to bed in good condition. Temp. normal, pulse 89.

7*th*, 8 P.M. Temp. 100°, pulse 97. Passed about one pint of urine during the preceding twenty-four hours. Removed dressing, irrigated, and re-dressed.

8*th*, 8 A.M. Temp. 97⅘°, pulse 86. 8 P.M. Temp. 99⅘°, pulse 107. Passed one and a half pints urine.

9*th*. Temp. normal, pulse 86. Passed one quart of urine; re-dressed; improving rapidly.

10*th and* 11*th*. Temp. and pulse normal.

12*th to* 20*th*. Temp. from 100⅘° to 102°; pulse 88 to 120. Redressed and cleansed wound every day.

21*st to* 28*th*. Temp. normal; pulse 80 to 100. Dressed every day.

22*d* (sixteenth day). Removed the upper drainage-tube.

30*th*. The patient sat up for the first time.

June 6*th*. Removed the lower tube.

25*th*. Wound entirely healed with the exception of two sinuses along the drainage-tube tract, which continued to discharge considerable pus. They were cleansed daily with antiseptic solution. In order to keep the patient under observation, and to continue treatment of sinuses, I secured for him a position as hospital nurse.

October 1. Five months after the nephrotomy the sinuses were still discharging pus freely, the microscope showing traces of pus in the urine, the patient suffering more or less pain, with increased temperature at times; and upon his earnest solicitation for me to do something to relieve him of his suffering and discomfort, I advised a complete removal of the offending organ. After explaining to him the dangers of the operation, he consented, saying, "I have but one time to die, and I would rather die than suffer as I have during the past eight months."

6*th*, at 10 A.M. After a thorough antiseptic preparation, assisted by Drs. Clark and Zimmerman, and in the presence of the staff, I again etherized the patient. Curetted the old sinuses and made an oblique lumbar incision four inches long, the same as in nephrotomy. After exploring the kidney I made a second incision two and one-half inches long, beginning about one inch in front of the posterior extremity of the first, and running vertically downward. The adhesions were numerous and very firm, and it was with considerable difficulty I released the kidney from its surroundings. I then passed an aneurism needle armed with a double ligature of silk through the pedicle, between the ureter and vessels, ligating the ureter separately and the renal vessels *en masse*. I then lifted the kidney as far as possible out of the wound, and ligated the whole pedicle. After cutting away the diseased organ and satisfying myself that there was no hemorrhage, I thoroughly irrigated the wound and old sinuses with a 1 to 2000 bichloride solution.

Inserted a large rubber drainage-tube. Closed the vertical incision with silkworm-gut sutures. Packed the wound with iodoform gauze and applied antiseptic dressings.

Upon examination I found the remains of the kidney to contain three distinct abscess cavities, one of which contained about four ounces of pus.

6*th*. Before operation, temp. 98½°, pulse 89. 4 P.M. Temp. 101°,

pulse 130, resp. 36. 8 P.M. Temp. 101⅘°, pulse 140, resp. 40. Pulse weak and thready, expression bad, face anemic; patient restless and vomiting freely; dressings very much soiled. Gave hypodermatic injections of digitalis and strychnine every three hours; whiskey by enema every two hours. Complained of severe pain in wound. Gave hypodermatic morph. gr. ¼, every four hours until quiet.

7*th*, 8 A.M. Temp. 100⅗°, pulse 126, resp. 30. Has passed twelve ounces urine during the last twenty-two hours. 8 P.M. Temp. 102⅖°, pulse 130, resp. 30. Pulse much better and expression better.

8*th* Much improved in every way. Slept well most of the night. Passed twenty-four ounces urine. 8 A.M. Temp. 100⅖°, pulse 102, resp. 20. 8 P.M. Temp. 100⅖°, pulse 115, resp. 24. Re-dressed and cut away a half-inch of drainage-tube.

9*th*, 8 A.M. Temp. 101⅕°, pulse 108. Has had a good night. Passed one quart of urine; bowels moved freely. 8 P.M. Temp. 102, pulse 116, resp. 20.

10*th*, 8 A.M. Temp. 100⅕°, pulse 106, resp. normal. Had passed one quart of urine. 8 P.M. Temp. 100⅗°, pulse 104; re-dressed, cutting away a half inch of tube.

11*th*, 8 A.M. Temp. 99⅗°, pulse 94. Slept well all night. Passed thirty-four ounces urine. 8 P.M. Temp. 100⅕°, pulse 110; bowels moved freely.

12*th*, 8 A.M. Temp. 98½°, pulse 91. Passed thirty-six ounces urine. 8 P.M. Temp. 100⅖°, pulse 96.

13*th*, 8 A.M. Temp. 98½°, pulse 94. Passed one quart urine. Slept well all night. Removed a half-inch of tube and re-dressed. 8 P.M. Temp. 100°, pulse 90.

14*th*, 8 A.M. Temp. 98⅖°, pulse 86. Passed thirty-four ounces urine. 8 P.M. Temp. 99⅖°, pulse 92.

15*th*. Temp. and pulse normal. Passed fifty-six ounces urine. Removed drainage-tube and sutures; wound granulating nicely. Redressed.

17*th*. Improving rapidly. Temp. and pulse normal. Has passed forty-eight ounces urine during past twenty-four hours.

27*th*. Sat up in bed. Temp. and pulse have been normal, and wound re-dressed every second day.

November 7. Allowed to sit up every day. Has increased in weight.

December 1. The wound has completely healed, with the exception of a small sinus, due to the ligatures; and the patient has resumed his duties as hospital nurse.

Thorough antisepsis was observed in the preparation of the patient during the operations and in the after-treatment of the case.

September 1, 1892. The sinus still remains open, discharging about one drachm of pus daily. At times during the past year the patient has complained of severe pains in the right lumbar region, but upon a thorough examination I have been unable to detect any disease of the right kidney. The urine has been examined frequently, and each time it has been normal and entirely free from pus. Average amount passed daily, one quart.

DELIVERY OF THE AFTER-COMING HEAD.

By WILLIAM WOTKYNS SEYMOUR, M.D.,
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THE great infant mortality in head-last cases is largely due to the fact that the general practitioner is but little acquainted, as a rule, with the best methods for overcoming the difficulties which exist. The accessible works on midwifery are usually text-books, which regard the mechanism as of so little importance as to be worthy of but few pages, while embryology receives its many. These books commonly mention but few methods of dealing with the various difficulties and quite frequently teach a radically wrong operative procedure. The entire tendency of midwifery teaching at the present seems to be to deprecate repeated internal examination, and to magnify diagnosis by external palpation. While I clearly recognize the necessity of avoiding infection and value highly external palpation, it seems to me very unfortunate that our practitioners are to grow up with a dread of repeated examinations, as by them only can one acquire the knowledge of the mechanism and the skill requisite to overcome in proper time the difficulties which arise.

At the superior strait, and we might say elsewhere, the obstacles to delivery, apart from insufficient pains, are mostly those resulting from an actual or acquired disproportion between the fetus and the pelvic strait. Contracted pelves of various degrees are the most common causes in the first class, although pathological conditions of the fetus are also to be included. In the second class we include faulty rotation and the increase of diameters due to the elevation of the arms. From very early times traction was made upon the feet, and even pressure had been made upon the abdomen, but to Mauriceau belongs the credit of introducing into practice the method which has been most commonly taught under several different designations.

In this method, as soon as the arms were freed the index and middle fingers of the hand, which the body straddled, were introduced into the child's mouth to rotate the face posteriorly and to flex the head by this traction upon the jaw combined with traction by the fingers of the other hand hooked over the shoulders. The delivery was effected by elevating, under continued traction, the child's body over on to the mother's abdomen. There is no question but that in the majority of cases this method is effective. Smellie advocated that the fingers should be applied to the canine fossæ instead of the jaw, so as to avoid injuries to the floor of the mouth. However, Winckel says that if the thumb is placed well against the base of the jaw and the fingers well introduced, these injuries will not result. I have employed them both, but have found that at times it was extremely difficult to fix the finger-tips well in the canine fossa, and have repeatedly failed to produce flexion with the fingers in the mouth with any force I dared exercise. But never, unless the contraction was extreme, have I failed with either method when combined with external pressure upon the head.

Despite all that has been said of the ability to increase flexion by introducing the fingers into the mouth and depressing the jaw, I have always been very skeptical of its being the effective factor. Smellie's procedure seems the more rational, inasmuch as it acts on the long arm of a rigid lever. The effective factor I believe to be such a direction of the traction as to oppose firmly the occipital end of the antero-posterior diameter of the head to the pelvis, and thus compel the face to descend—an increase of flexion.

Of the ability to rotate the face by the fingers in the mouth I have no question, and such rotation, by bringing the face into the oblique diameter, would favor its descent. For delay at the superior strait when the face is posterior, the so-called Wigand-Martin procedure deserves a far more general recognition and adoption, inasmuch as it has all the advantages of the Mauriceau or Smellie methods, with the added efficiency of pressure upon the head. It may be employed by the practitioner alone, but better with a skilled assistant. In this procedure flexion and rotation are made by the index and middle fingers introduced well into the mouth, the thumb opposed to the base of the jaw, while the other hand makes pressure upon the head from the occiput toward the forehead. If an assistant is present he may make the external

pressure while the operator, in addition to rotating and flexing the face, makes traction with the spare hand upon the shoulders.

In cases of considerable contraction the head is first brought into the transverse diameter; then, by external pressure, the head is rotated about its sagittal diameter so as to crowd the posterior parietal protuberance under the promontory at the same time that the chin is depressed and rotated toward the median line by the fingers in the mouth. This method has succeeded when others have failed, and Winckel has experimentally brought a mature fetus through a conjugate of six centimetres in from fifteen to seventy-five seconds. Twice within a year I have employed this method where others have failed, and in each case delivered easily. When the chin is anterior and above the brim of the pelvis, it used to be advised to attempt to rotate it posteriorly, and even so good obstetricians as Madame LaChapelle and Cazeau advocated posterior rotation of the face by introducing the whole hand and acting with the fingers and thumb upon occiput and face.

All endeavors to rotate the face posteriorly are utterly unnecessary, as the head is very expeditiously delivered by making traction downward and forward on the shoulders and then carrying the child's body with continued traction over on to the mother's abdomen—thus delivering the occiput first as in simple head cases. Simple as is the maneuver, it has yet received scant recognition, although in 1883, in the *American Journal of Obstetrics*, I pointed out its value and the scant notice it has in English and American text-books. With the chin anterior and above the brim of the pelvis, the diameters of the head are as favorable to the child as in the common head presentations, and the only danger to the child is from delay and pressure upon the cord. As in all head-last cases, delivery must be quickly effected so soon as the scapulæ are seen, if the child is to survive, and every second is of great value. Madame LaChapelle and Cazeau advise, in these cases of anterior rotation of the chin, to attempt posterior rotation by pushing up the body of the child and at the same time rotating the back anteriorly. If this failed, they urged the introduction of the whole hand as above mentioned for the purpose of effecting this posterior rotation. This latter procedure is certainly uncalled for, as it requires much time and not infrequently fails, while the first is applicable only when the head and body are easily movable.

In the paper mentioned, I said: "The method employed demanded no rotation; its only danger was from pressure upon the cord against the anterior wall of the pelvis; and its advantage was that traction upon the shoulders, combined with elevation of the child's body upon the mother's abdomen, caused not only the head to extend to its fullest limit (by reason of the direct and leverage action upon the chin) and to descend into the pelvis, but the combined elevation of the body and the traction upon the shoulders caused the trachelo-bregmatic diameter to revolve around the symphysis as a centre, and the occipital plane (the plane of the smallest diameters), the biparietal and suboccipito-bregmatic, to engage in turn with those of the inferior strait of obstetricians (plane of rotation) and the plane of the bony arch, the plane of exit. Now if the voluntary powers of the patient are good, delivery can be effected by them alone; but if assistance is needed, forceps can be applied *behind* the back of the child in the occipito-mental diameter of the head, and delivery effected as easily and as speedily as in the corresponding original occipito-anterior positions of the head; for the body of the child being already delivered, the head is, as it were, decapitated, and by the previous passage of the body of the child, the obstetric canal is already dilated."

Closely connected with these cases of chin on pubis are those in which the chin is anterior, but has entered, the head well flexed. In these cases it is commonly advised to assist flexion by the fingers in the mouth and by traction upon the shoulders with the other hand downward and backward to cause the head to descend into the pelvis, and then, by combined traction and elevation of the child's body on to the mother's abdomen, deliver occiput first. Although advised by Chailly, Fehling, Winckel, and others, the procedure is radically wrong. Wrong, inasmuch as it effects the delivery by compelling the unfavorable occipito-frontal diameter to revolve around the symphysis as a centre, and the excess in length of this diameter must be taken out of the perineum. If, however, in these cases of chin anterior and flexed the back of the child is carried backward over against the mother's back, while strong traction is made downward against the *coccyx*, the more favorable suboccipito-frontal diameter will revolve around the coccyx as a centre and the head will be delivered face first. This fact was empirically recognized by a member in a discussion at the Boston Obstetrical

Society, reported in the *Boston Medical and Surgical Journal*, March 2, 1882, although he erroneously regarded the treatment as suitable for cases with chin on the pubis.

The Prague maneuver, while extolled by Kiwisch and Scanzoni for the delivery of the head in posterior positions of the head, has occasioned so many injuries to the neck and spinal cord, that its use is reprobated by the best practitioners. Fehling, however, admits that when the head is high up and the mouth as yet inaccessible, the maneuvre may be of value in bringing the head into the pelvis, and then delivery may be effected by the Mauriceau-Veit method. The Prague maneuver—the Prager Hundgriff of the Germans—may be divided into two acts, the first of which consists in grasping the legs just above the ankles with one hand, hooking the fingers of the other over the shoulders, and then making gradually increasing traction downward in the direction of the inferior strait, at the same time that the shoulders are so rotated as to favor the rotation of the head into the more favorable oblique diameter. When the head has entered the pelvis, as it not infrequently does with a rush, the second act begins. This consists of a continuation of the downward pressure by the hand upon the shoulders at the same time that both hands make continuous traction and elevate the body of the child upon the mother's abdomen. This downward pressure of the hand during the second act seems to me one of the worst features of the maneuver, as it transfers the centre of rotation from the symphysis to a point below represented by the fork of the fingers upon the neck and shoulders of the child, and in so doing requires the space lost to be taken out of the perineum and soft parts, besides exposing the neck to a force applied in a direction which it is least able to withstand.

As to the propriety of using forceps in head-last cases, I think there can be no question, within certain limits. These I might state somewhat as follows: Forceps will rarely or never be required at the superior strait, for the Wigand-Martin procedure in posterior face cases, and the methods here advocated for the anterior positions of the face, especially if combined with external pressure, will prove effective if there is any chance of obtaining a living child. If the child is dead, it is folly to use forceps and expose the mother to additional risk when the perforator can so diminish the head that delivery can be speedily and safely made. Forceps

may be applied, however, in the excavation when, from any cause, there is delay which manual methods seem to be unequal to overcome rapidly. In the application of forceps in these cases, they should be applied so as to cause the smallest diameters to engage. That is, they should be applied so as to approximate the occipito-mental diameter, and should not, as is frequently advised in the cases of chin on pubis, be applied in front of the child's body, as then the forceps are applied in the trachelo-bregmatic diameter. In the case where the occiput is posterior but the head is well flexed, the forceps may be applied with curves reversed, and delivery then effected by rotation around the *coccyx*.

THE ADVANTAGES OF VERSION IN A CERTAIN CLASS OF OBSTETRIC CASES.

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Version, as an operation resorted to in obstetric practice, is of very ancient date; it was evidently not unknown to Hippocrates, for the art of midwifery received much attention as early as the time in which he wrote. From time to time at a later date the method by version had its advocates and its opponents. The advocates and opponents were in turn undoubtedly sometimes actuated solely by caprice, or were influenced, for a while at least, by the occurrence of cases in which the practice was to a large extent seemingly successful, and at other times were governed in their practice by the occurrence of cases in which failure resulted through its indiscriminate employment. The operation by version was, however, revived in Paris in 1550, after the advantages had been illustrated by the teachings and practice of Ambroise Paré. In Great Britain this method of procedure seemed for some time to have fallen into disrepute, owing no doubt to the appearance of the obstetric forceps invented by the Chamberlens. Though the great masters in obstetric work had been in some degree successful in the employment of version, its use, nevertheless, was not generally adopted. The cases in which it was resorted to were indiscriminately selected; the results thus obtained could not be grouped in a manner to indicate what should be a safe method of proceeding. Version, in falling into disuse, shared only the fate of many other excellent methods of management that failed to gain preference with the operator. The celebrated Baudelocque,[1] first accoucheur of the Hôpital La Maternité, did much in bringing before the profession again the advantages this method afforded. Sir James Y. Simpson, of Edinburgh, in his large contribution to the obstetric branch, demonstrated that the fetal head in diameter at its base is

[1] "Art des Accouchements," 1781.

often less than it is at its vertex or at its interparietal segment. Simpson, in adopting the method of version, was able to carry out the practice with great facility by availing himself of the discovery made at that time of the employment of anesthetic agents. He unquestionably added an interest and a dignity to obstetric work. The influence of his great name did much toward re-establishing the method of version. Among the arguments urged in its behalf was that it could be resorted to in an early stage of labor, whereas in using forceps it was necessary to wait until the os uteri was fully dilated. By an early resort to version the medical attendant is often able to prevent the exhaustion and other severe results which are liable to occur before the cervix uteri has dilated sufficiently to warrant the employment of forceps. It was also thought that the fetal head sustained less compression when delivery was delayed or was effected by other means. The employment of obstetric instruments, or of any means other than the hand, in delivery, began to be looked upon at best as of doubtful utility. As regards the results to the fetus, it was held that the chances of saving its life were greater than by the use of the long forceps. Compression of the funis and over-extension of the neck, which are the chief dangers to the child in version, may be overcome in great measure by the increasing dexterity acquired on the part of the operator. Among the causes demanding artificial delivery was narrowness of the pelvis or contraction at the brim. In cases in which the brim was immoderately contracted craniotomy was the alternative. Craniotomy was also resorted to in cases in which delivery by version was attempted when the fetal head failed to pass the brim. Another argument advanced in justification of version, when the child could not be saved, was that the mother's life should be regarded as of greater consequence than that of the child. This, no doubt, is a sound principle for guidance in obstetric practice, but it should be supplemented by another principle, recorded among the canons sacredly preserved, that in delivery no expedient should be resorted to that will jeopardize the life of the child until the other means giving reasonable promise of happier results have been tried and have failed.

Improvement from time to time in surgical instruments has aided in the development of the forceps better adapted for use in cases in which the head is arrested at or above the brim. The forceps

should be of sufficient length and of the requisite curve for effecting delivery. Barnes' double-curved forceps is a most admirable instrument for cases in which the head is arrested above the pelvic brim.

Tarnier's axis-traction forceps, though somewhat complicated, often fulfils the highest expectation. The axis-traction is particularly useful in cases in which the head has too great a tendency to mount upward against the symphysis pubis. The force expended in the traction can be used or distributed to a greater advantage. The axis-traction, as modified by A. R. Simpson and by others, affords an almost incalculable advantage for delivery. In a paper[1] entitled "A Certain Class of Obstetric Cases in which the Use of the Forceps is Imperatively Demanded," read in the Section of Obstetrics and Diseases of Women of the American Medical Association, I have made mention of the results of my general experience with the use of forceps. In that paper I have expressed my preference for the use of forceps instead of resorting to internal version. By the use of the forceps the mother has escaped many dangers; there has been a great saving of fetal life. In a paper which I read before the Middlesex South District Medical Society, July 15, 1885, I gave the results of a series of one thousand obstetric cases occurring in my early practice. From a summary of that contribution I abstract the following facts relating to the employment of the forceps and of version:

Long forceps cases	37
" " case for head in utero	1
" " cases " " at brim	26
" " " " " medium	10
Children living	26
" dead	11

One child died next day of hemorrhage from the lungs; this child appeared perfect when born. Two children were dead before the forceps was applied. Five children were very large and the pelvis of each mother was very narrow. One woman was in labor three days, the membranes having ruptured before the labor began; she died of hereditary phthisis a few years later; she was never pregnant after the first time. One child was feeble; the mother died of uremic convulsions. One child was dead, and the mem-

[1] Journal of the American Medical Association, 1891.

branes had ruptured before the beginning of labor; the mother had uremic convulsions, but recovered.

Version cases	16
Children living	4
" dead	12

One case, a breech presentation at brim, cord pulseless; mother had experienced a great deal of mental excitement from domestic affairs. Another case was a breech presentation; the pelvis was too narrow for the head of the child to pass—the head was very large.

Another case, head at brim; ether had been given at an early stage; there had been some delay. This was the thirteenth child; the twelfth child of this woman was born by the aid of forceps applied by another physician, but the child was disfigured and lived but a few minutes. The eleventh child of this woman was born without the aid of forceps, but it died of convulsions within twenty-four hours from birth.

For the tenth child I was compelled to use the long forceps; the head was at the brim, and it was with great difficulty that I succeeded in extracting it. During the labor in this case I gave constant attendance for nearly three days.

Another case, the head was at the brim. Exhausting hemorrhage previous to my being called. Long forceps failed. Version was resorted to, but the child was cyanosed; the mother did not rally, owing to the great loss of blood previously sustained.

Another case, the second labor, version was resorted to; the child was stillborn. In the first labor the long forceps failed; the perforator had to be employed. In this case the mother had a figure-of-eight pelvis; it was narrow, too narrow for a living child at full term to pass.

Another case in which uremic convulsions occurred before the labor pains began, manual dilatation and version were tried. The child was dead; mother did not recover.

Another case, head at the brim; long forceps slipped; version; child was feeble and lived but a short time; the mother died of septicemia.

Another case in which the pelvis was very narrow; the membranes ruptured two days before the labor began. Long forceps failed; head at the brim; there was much hemorrhage. Version

was attempted; perforation of the head was finally resorted to. The mother was a feeble woman; she sank and died from the combined effects of shock and loss of blood.

Another case in which the child was dead; the cord had prolapsed and was found pulseless. The head was large. No movement of the child had been felt for some days before the labor began. Long forceps failed; had recourse to version; mother recovered.

Another case in which a shoulder presented. External manipulation and long forceps failing, version was resorted to. The placenta was found diseased.

Another case in which uremic convulsions occurred; manual dilatation and version were tried; the head was at the brim; the child lived but a few hours. The mother ultimately recovered.

Brief summary of the version cases: Both mother and child lived in four cases. Both mother and child died in four cases. Eight mothers recovered, but lost their children.

Summary of the long-forceps cases: Both mother and child died in four cases. Both mother and child lived in twenty cases. Two children lived, but their mothers died. Seven mothers lived; their children died.

It will thus be seen that the results of the management of the cases here given are largely in favor of the employment of forceps instead of version. Cases occasionally occur in which delivery cannot with any degree of safety be effected by the use of forceps. A case of this kind occurred in my practice April 22d. The patient was aged forty years. This was the thirteenth labor; she had been in labor some six hours before my arrival. The membranes had ruptured and the os was fully dilated. The conjugate diameter of the pelvis was three and one-fourth inches; the transverse diameter was four inches; the oblique, or the diameter of Deventer, was four and three-fourths inches. The labor pains were very strong, with occiput presenting anteriorly. The head engaged at the brim, but made no further descent. The promontory of the sacrum was unduly developed; the soft parts were fully relaxed. The funis had prolapsed and was pulseless.

For the next two hours the pains were strong and regular; soon after the patient complained of being weak, and her symptoms indicated that she was becoming exhausted. Ether was adminis-

tered and the long forceps was applied, but the head refused to descend. Strict antiseptic precautions had been instituted from the onset of the labor. Dr. A. H. Tuttle came to my assistance; ether was continued and the forceps with axis traction was tried again, but failed us. Version was then attempted. A little difficulty in reaching the feet was encountered, owing to the unyielding condition of the head, which was closely wedged within the pelvic brim. With careful management and perseverance the feet were seized and brought down; the head at its base readily entered the brim, but became arrested at its interparietal segment. Continued traction at the feet, with manipulation of the head, quickly resulted in effecting a reduction of the transverse diameter. The head then readily passed the introitus and emerged at the angustia perinealis. The fetus, though large, was not disfigured. The measurements of the several diameters of the head exceeded those of a typical one.

The biparietal diameter was upward of five inches, the occipito-mental six inches, the occipito-frontal five and one-half inches, and occipito-bregmatic four inches. It will, moreover, be seen that each of the several diameters of the fetal head was greater than the corresponding diameters of the pelvis of a well-formed woman, and considerably greater than each of the diameters of the mother's pelvis as mentioned in this paper. The measurements of this mother's child born at her twelfth labor, which occurred September 6th, 1888, were not as great. The biparietal diameter was only four and a half inches; the other diameters, except the occipito-frontal, were also less. When I was called to the patient in her twelfth labor she had been in pain many hours, and her physician had been in constant attendance; the os and cervix were fully dilated, but the head had not engaged at the pelvic brim. After the patient had been fully etherized the use of the long forceps, which had been curved sufficiently to allow the convex edges to sweep the hollow of the sacrum, brought the labor to a happy termination. It is sometimes surprising to see what a slight difference in the increase in some of the diameters of the fetal head will retard the progress of labor. Two and a half years ago I was called to a woman whom I had before attended in nine consecutive labors. In this tenth labor I experienced unusual difficulty in effecting delivery. I was compelled to resort to the use of the long forceps; the head had engaged at the pelvic brim, but could make no further descent.

The biparietal diameter of this child was four and a half inches; it was only from one-third to one-half inch greater than had occurred in the same diameter of any one of the other nine children. I have had occasion before to remark that the help to be derived by the use of forceps implies a normal or a nearly normal proportion of the pelvic cavity. When, however, the pelvis has undergone any considerable deformity, the employment of the forceps is liable to be attended with failure to effect delivery. In a case of pelvic deformity of the right side to which I was called in consultation, the first stage of labor went on well. The head failing to engage at the brim, forceps by the attending physician was unsuccessfully applied before my arrival. Ether was again administered, and version was decided upon and was effected by carrying the fetus to the left and by directing the base of the head to the right acetabulum, so that the bregma could easily sweep the left sacro-iliac synchondrosis and then pass beneath the acetabulum, where the pelvic basin had suffered the least from the distortion; the child survived and the mother did well. Fortunately the interparietal diameter measured only three and one-half inches; the occipito-frontal diameter exceeded a normal one, but the passage of the head was favored by an originally large conjugate diameter of the mother's pelvis, though the pelvis, as a whole, was markedly distorted. An advantage to be gained in resorting to version and in having the head engage at the base is that compression of the parietal segments will go on more regularly, naturally, and safely. In a case to which I was called in consultation some weeks since I was able to adjust fairly well both blades of the forceps, but on making firm traction I observed that there was beginning to take place an undue compression or an overlapping of the right parietal at the junction of the temporal bone. The pelvic cavity on the right was distorted in a marked degree. I have no doubt that, had I persevered with forceps, delivery could have been accomplished, but only at the risk of the life of the child. The child was born alive, but the appearance of the head justified the course I pursued in resorting to version. Another advantage version sometimes has over the employment of forceps is when the head rests over or upon the brim, and the blades of the forceps can only be applied at the occipito-frontal portion. In such a case, when there is contraction at the brim, compression following traction on the forceps will

cause projection of the lateral segments toward either extremity of the antero-posterior diameter of the pelvis, and thus prevent engagement of the head or its descent through the pelvic cavity.

Version offers an advantage in a case in which craniotomy in a previous labor was found necessary by reason of a contracted brim. I have records of such a case, in which I saved the child by version; the mother in the two previous labors, according to her history, was delivered by craniotomy after the long forceps had failed.

To another patient, Mrs. C., aged twenty-three years, I was called; it was her third labor. Delivery in the two previous labors was effected by instruments; the children were stillborn. When I was called the head was at the brim, but did not engage; the conjugate diameter was three inches, the transverse was three and one-half inches, and the diameter of Deventer was four and one-half inches; the left side was straighter than the right. This seemed to be a case in which version should be employed. The patient was profoundly etherized, but it was found necessary to exercise unusual traction before the head could be made to enter the brim. There was much delay in disengaging the head at the outlet. The child, however, was born alive and did well. The fetal head was hard and broad at the vertex. The head had been slow in undergoing compression sufficient for its descent through and along the arch of the pubes. Careful examination after the child was born showed that the bones of the fetal head overlapped in such a manner as to cause no serious damage to the brain.

Another case to which I was called was that of Mrs. C., aged twenty years; it was her first pregnancy. She had been in labor twenty-seven hours; the chin presented under the arch of the pubes. The left side of the pelvis was straight. Version was resorted to and the child was born alive, though the forehead, eyes, and lips were much discolored and swollen. Version can be most advantageously resorted to in that class of cases in which much flatness of the pelvis prevails, and in which the head presents at the brim, with a cervical lateral obliquity having the anterior or the posterior portion of the parietal bone and the sagittal suture appear in a transverse direction. The presentation may be either posteriorly at the promontory of the sacrum or anteriorly at the arch of the pubes. In a case with such factors to be dealt with, the

forceps may be tried, but my experience justifies me in saying that the timely use of version will yield the larger percentage of successful results. Among the causes adding to the difficulty in version is the impinging on the scapula, or the grasping of it, by the fibres of the internal cervix when in a partial state of dilatation. This condition of things interferes with the accomplishment of the necessary rotation of the fetal body, and, if not recognized by the obstetrician, the management may be fraught with much disaster. The remedy, as pointed out by Dr. Herman,[1] is most simple. It consists in pressing the point of the shoulder toward the middle line of the cervical canal while traction is made on the feet; this method of procedure liberates the shoulder and allows delivery easily to be effected. The employment of the long forceps for high operation has, with some obstetricians, become very popular. The practice has been more general since the introduction of the axis-traction method. Barnes[2] formerly resorted to version, but his greater experience has led him to believe that the cases were very rare in which Tarnier's forceps was not superior to version. In answer to this statement it should be said that it is in this rare class of cases the appeal is offered for the employment of version. Dr. Peter Lodwick Burchill,[3] surgeon-accoucheur to the City of London Lying-in Hospital, makes mention in detail of forty-five cases of lingering labor which occurred out of a total of eight thousand cases. These lingering cases were successfully managed by resort to version. By this plan thirty-eight children were saved, with no fatal result to any of the mothers. Other writers also have offered evidence in favor of the advantages to be derived by version in certain cases of contracted brim or of lingering labor. The employment of version in all cases of lingering labor is far from what I intend to advocate. Such a practice to be adopted for all cases, now that we have other means that can be used for relief, would, I believe, be most unwise, if not pernicious. In those exceptional cases which sometimes appear to baffle the highest skill the method for relief should not be according to any iron-clad rule, because success in this, as in all difficult accomplishments, can be expected to follow only after the exercise of good

[1] Transactions Obstetrical Society of London; also Braithwaite's Retr., part 94.
[2] See Braithwaite's Retr., part 90, p. 190.
[3] Op. cit., p. 189.

judgment, after taking wise counsel, and often after the attainment of large experience. In this connection I cannot refrain from mentioning what Dr. Champneys[1] has so aptly said in regard to the use of version: "That a fallacy surrounds the frequent use of all operative procedures; the practitioner who turns all children or who puts forceps on all heads will, of course, get the best percentage in the results of operation cases, but will by no means save the most women and children."

Against the employment of version it has been urged that the fetus is liable to suffer from many accidents. Fractures of the bones of the upper and of the lower extremities have occurred, while serious or fatal injuries connected with the chest, with the spine, and with other parts have not infrequently resulted. The occurrence of such mishaps has undoubtedly taken place in those cases in which proper discrimination as to choice of the best means of delivery has not been exercised. It may be laid down as a general rule that in all cases in which the antero-posterior diameter of the pelvis of the mother is less than six centimetres, version should not be attempted. In applying this rule other important factors in some cases will have to be taken into consideration. The employment of forceps with axis traction in high operations is by no means unattended in all cases with serious injury to the fetus. Fracture of the cranium, compression of the brain, lesion to the great nerves and to other parts, are often sustained. The induction of premature labor, the employment of craniotomy, when done under the strictest antiseptic precautions, cannot but expose the mother to many dangers. The employment of the Cæsarean section, the adoption of Porro's operation, in those cases in which they are most clearly indicated, can never be attempted without the patient's assuming many risks, and such operations, before being undertaken for relief in any class of cases, must ever be regarded as measures requiring the profoundest consideration.

[1] Op. cit., p. 190.

SACRAL RESECTION: ITS PLACE IN PELVIC SURGERY.

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The operation known as sacral resection was introduced in 1885 by Kraske for the treatment of some of the forms of malignant desease of the rectum which were not amenable to relief through the perineum and the rectal outlet. The operation consists in making a bow-shaped incision over the sacrum, beginning at the left sacro-iliac synchondrosis, carrying the incision across to the right and beyond the point of the coccyx. The incision is made down to the bone, and the muscle cut away from the sacrum and the ligaments from its left border. The coccyx is then enucleated, the rectum pushed off from the sacrum, and with chain-saw or bone-forceps the left side of the sacrum below the third sacral foramen is cut away. This may be done either laterally, as we have just suggested, or transversely. The latter procedure has been recommended by Bardenheuer and others. It has seemed, however, preferable to make the incision upon one side, for the reason that in so doing the nerves which make their exit from the fourth sacral foramen on the opposite side, and supply to a limited degree the rectum and the bladder, are left undisturbed.

No fears may be felt regarding injury of the sacral canal, for the canal of the dura mater does not extend so low and the filum terminale has no special significance. The removal of a portion of the bone higher up, involving the third sacral foramen, will be attended with serious injury to the sacral plexus of nerves, as the third foramen gives vent to quite a voluminous distribution of the nerves.

The operation as recommended by Kraske consists in making the incision on the left side and resecting the left side of the sacrum; this for the reason that the rectum is situated more to the left side

of the pelvis, and the incision in this situation is consequently directly over it. In those cases in which it is desirable to apply this procedure to gynecological conditions, and where the rectum would be pushed to one side, it is preferable to make the incision upon the right and resect the right side of the sacrum, for in so doing there is necessarily less displacement of the rectum. The operation itself has undergone considerable modification at the hands of different operators; thus, as has already been mentioned, Bardenheuer preferred to make the transverse section of the sacrum below the third sacral foramen. Cutting the sacro-sciatic ligaments and removal of a portion of the bone have been considered to be so serious a weakening of the pelvic floor that methods have been resorted to with a view of reaching the pelvic structures through openings of this character, and yet without sacrifice of the structure.

Heineke and Levy have proposed the temporary resection of the bone, performing the operation by making an incision somewhat similar in manner to that suggested, or, as Levy proposed, making a horizontal or transverse section, eight to ten centimetres long, upon the sacrum, the breadth of a finger above the base of the coccyx; and from the extremities an incision is made on either side, converging toward the point of the coccyx a little beyond it, not, however, brought together. A hook is placed in one of these vertical incisions and drawn strongly outward. The ligaments in the way of the transverse incision are then cut; the sacrum is cut through with saw or bone-forceps in the line of the transverse incision. The lower portion is then seized with a large hook and drawn downward and backward. This exposes the rectum, and after the operation has been performed the sacrum is replaced and sutured, so that union results. The cases under my observation, however, with the ligaments sutured to the remaining tissues, have been found to experience no inconvenience or discomfort whatever, so that it does not seem necessary to resort to a method of procedure which gives less space for manipulation and renders a possibility of subsequent want of union of the resected structures.

The class of cases to which this operation is applicable and affords increased facility is certainly worthy of our earnest consideration. There can certainly be but little question as to the advantage of the procedure in all cases in which it is necessary to resort to operation for relief of diseased conditions of the middle part of

the rectum. In favorable cases annular stricture resulting from cancer involving this portion of the viscus may be removed by a resection of the rectum, and the subsequent restoration of the calibre of the gut be secured by straightening out the sigmoid flexure and bringing together the two ends.

In operation for the establishment of an artificial anus the procedure affords the most satisfactory method of operation in all those cases in which the disease is limited to the lower and middle thirds of the rectum. Where the finger can be passed through the diseased tissue, reaching healthy gut, the proper plan of operation should be resection of the sacrum and the establishment of an artificial anus posteriorly in preference to colotomy. The resection of the sacrum enables us to reach the disease, even though it may have extended into the peritoneum. The operation would consist in the method, already suggested, of resecting the bone, pushing off the rectum, and, finding the disease situated high up in the viscus, opening the peritoneum, dragging down the gut, suturing the peritoneal surfaces to the gut at the higher level; shutting off the peritoneal cavity before the diseased mass itself is removed, in this way thoroughly preventing the introduction of fecal matter into the peritoneal cavity. After suturing the surfaces the diseased tissue may be removed and the end of the gut brought out below the sacrum. It is here stitched fast to the skin and the skin edges. Where much traction is made the skin should be inverted by the use of deep sutures, so as to relieve tension upon the sutures between the integument and gut.

It may be asked, What advantage does such a procedure present over ordinary colotomy? First, it enables us to remove the diseased tissue which has given rise to the condition, and in this way afford the patient a possible chance of a radical cure; second, the situation of the anus in close proximity to the sacrum prevents the cicatricial contraction which would take place if the opening were made in loose abdominal walls; third, the situation of the artificial anus posteriorly is such that the patient is not required to assume an unnatural attitude in order to accomplish the evacuation of the bowels; fourth, the situation of the bone enables the patient to wear a suitable pad and thus control more effectually the evacuation of the contents of the bowel, as in either procedure the incontinence of feces without a suitable pad is a necessary sequence.

A woman, aged thirty-four years, had suffered for two years from obstruction of the intestines. In the last few months prior to coming under my observation her distress had been constant; the movements were slight in character, were attended with violent straining, and afforded scarcely any relief. Under the influence of an anesthetic I succeeded in pushing the finger through the obstructed canal, and reached the upper end, apparently, of the constriction, at a distance of three and a half inches. The obstruction began just within the anus. She had been subjected to operations for fistula-in-ano and for hemorrhoids. I advised an operation for the removal of the diseased tissue and the establishment of an artificial anus.

This operation was done November 12, 1891. A bow-shaped incision was made from the left sacro-iliac synchondrosis, across the median line, extending to the right side of the tip of the coccyx. The coccyx was enucleated and the left half of the lower two sections of the sacrum removed by chain-saw. The bowel was pushed off from the sacrum and dissected up, when it was found that the disease extended into the peritoneal cavity. The peritoneum was cut off from the sides of the rectum, the bowel drawn down, and the diseased mass cut away in healthy tissue. The end of the rectum was drawn out, the peritoneum sutured to the wall of the bowel higher up, and the gut fastened to the edges of the skin at the edge of the resected sacrum. In doing this considerable traction was made upon the skin edges and the gut upon the right side.

In the subsequent convalescence this portion of the structure sloughed, leaving the edge of the bone exposed and permitting the intestine to retract. The patient went nearly a week without having any evacuation of the bowels other than the passage of flatus. The bowels were then very freely evacuated of a large amount of hard fecal material. It was nearly three weeks before the structures were in a condition to permit of a secondary operation to restore the bowel upon the right side. This was done by cutting away with bone-pliers still more of the sacrum, or that portion of it which was exposed, freshening the edges of the skin, dissecting up the edges of the bowel and by sutures bringing them in contact. Deep sutures were introduced in such a way as to remove the tension from the intestinal sutures. The patient rapidly recovered from the operation, gained in health and strength, and expressed herself as very greatly appreciating the relief that had been given her. She is able to attend to herself; the evacuation of the bowels is free, but involuntary, and with scarcely any warning. By the application of a suitable pad she is able to escape the soiling of her clothing or person, and again enjoys life. She

has gained in weight and appearance. There is not the slightest indication of any return of the disease.

In those cases in which malignant disease has extended from the rectum to the uterus and upper part of the vagina, or, *vice versa*, from the uterus to the rectum, sacral resection affords the best facility for operative procedure. Operation *per vaginam* in such cases will be attended with insurmountable difficulties, as so extensive manipulation would be required to be made at so great a distance from the outlet that the operation upon the rectal structures could not be managed. The following case illustrates the application of the operation to such conditions:

A woman, aged forty-two years, married, the mother of three children, had had four miscarriages. She was sent to me by Dr. Henry Fisher, under whose care she had been for a few weeks. She began to suffer, a year before coming under his observation, from pelvic trouble, attended with a frequent desire to evacuate the bowels, violent tenesmus, and discharge of blood. She had been treated for dysentery. For the last few months the trouble had been very greatly exaggerated and attended with pain in the pelvis. Evacuation of the bowels was very difficult, and the discharges were frequently entirely composed of blood. Upon examination *per vaginam* a mass could be felt, posterior to the uterus, that seemed to be continuous with it, and at the angle between the cervix and this mass there was induration and ulceration in the vagina. The cervix was comparatively healthy. Introducing the finger into the rectum—which was hard, dense, and had near its centre an opening into which the point of the finger could be pushed—it was at first supposed that we had to deal with cancer of the body of a retroflexed uterus, in which the disease had extended to the rectum, making it adherent to the uterus. More careful examination under an anesthetic, however, disclosed the fact that the mass which could be felt through the rectum was the partial invagination of a carcinomatous ring of the bowel, which had been displaced downward by the violent tenesmic efforts at stool. This involved the entire circumference of the rectum, and extended through its anterior wall into the vagina and in close proximity to the cervix. By pushing the finger through the stricture it was discovered that nearly three inches of the rectum were involved, leaving the lower inch and one-half comparatively healthy. The uterus was found situated in its normal position, adherent by the cervix to the cancerous mass. With the patient suffering from such a condition, it became a serious question as to what should be our

method of procedure. To permit it to continue was to doom her to a speedy and painful termination of life. It is true that we could resort to colotomy, and in this way enable her to evacuate the bowels and live in comparative comfort for some length of time; but it seemed preferable to remove the diseased tissues and make an attempt at a radical cure. This would, of course, require the removal of a section of the rectum, a portion of the vagina, and also the uterus. Such an operation could only be accomplished, and an effort made at the restoration of the calibre of the bowel, by the plan of procedure we have now under consideration. The patient preferred to accept the radical operation, after the character of both operations had been explained to her.

On the 19th of May, 1891, in the Medico-Chirurgical Hospital of Philadelphia, in the presence of some seventy-five physicians, the patient was subjected to the operation. She was placed on her left side and the resection of the sacrum made on the same side. The rectum was pushed off from its anterior surface, the gut then encircled below by a ligature, which was tied close to the malignant mass and cut through, the lower portion of the gut having previously been thoroughly cleansed and packed with iodoform gauze. The rectal mass was raised up and an opening made into the vagina, the uterus dragged down, its broad ligament ligated, and the organ separated. Then a ligature was thrown around the rectum above the malignant mass, and the gut itself opened and packed with iodoform gauze above in order to prevent extravasation of fecal matter, and the diseased tissues removed. The peritoneum was now cut about the rectum, permitting the sigmoid flexure to be straightened out, and the two ends of the divided rectum were sutured together, thus restoring the calibre of the gut. The cavity posteriorly was packed with iodoform gauze, and a tent of the gauze passed into the rectum above the sutured portion to act as a drain and to permit the gas to escape. The wound posteriorly was closed with sutures, dressed with iodoform gauze held in place by adhesive straps and a T-bandage.

During the performance of the operation the patient became greatly exhausted, suffering from profound shock, and during the greater portion of the time was pulseless. She was given, before the operation was completed, three-fourths of a grain of strychnine hypodermically, and within the twelve hours following the operation two grains of the same. She rallied from the operation and on the following day was pretty comfortable. The third day after the operation, upon examination of the rectum, it was found that some hard fecal masses had been pushed down into the canal. These were carefully removed and

the patient given a saline with a view to unloading the accumulations. In this, however, we found that the accumulation was greater than had been expected, and it was under the influence of its pressure that the lower portion of the gut was pushed off, permitting the fecal matter to pack the wound. It was consequently necessary to reopen the wound and wash out this extravasation, and treat the wound subsequently as an open one.

Four weeks after the operation had been performed the patient was again placed under the influence of an anesthetic, the ends of the gut dissected up and re-sutured, in this way restoring its calibre. Following this operation the union took place, with the exception of one point at which there was a fistulous opening through which fluid feces would pass. In spite, however, of the discomfort of an open wound at this time, and of the subsequent process of healing by granulation which was necessitated by the open wound, the patient expressed herself as being far more comfortable than before the operation was performed, when she had to be constantly straining to secure an evacuation of the bowels. She gained in health and strength, and was able to be about her house.

September 15, 1891, the patient was examined. The rectum was healthy excepting a fistula. Some induration existed posterior to the upper part of the vagina. She expressed herself as having gained great relief from the operation, in the absence of pain during evacuation of the bowels. This patient died a month later.

In this patient, while the operation was not effective in securing a radical relief, yet she expressed herself, even before the restoration of the gut was accomplished, as being greatly relieved from the discomfort and distress she had experienced, and that she felt well repaid for having had the operation performed.

The absence of any involvement of the rectum while the uterus is the seat of the disease does not necessarily preclude sacral resection as the method of operative relief. This is illustrated by the following history :

A woman, aged thirty years, had been married four years, but was never pregnant. She had suffered for the last year from severe pain in the side, extending down the limb and through the hip. Suffers from bleeding after coition or violent exercise. Upon examination the uterus was found presenting a roughened protuberance, the surface of which was found to be dragged down and bleeding at the slightest pressure. A mass could be felt posterior to the uterus, which was

evidently a diseased tube. Upon the 8th of July the patient was subjected to an operation for its removal. As it was evident that the fundus of the uterus was large, that the tubes and ovaries were affected and adherent, that the vagina was small, we deemed it wise to resort to the operation of sacral resection. The incision was made upon the right side of the sacrum, over the coccyx, to the left side. The coccyx was enucleated and the right side of the sacrum removed. The rectum was pushed to the left, the peritoneum opened, and the uterus readily reached. After introducing a large sponge the broad ligament on one side was grasped with a pair of forceps, gently raised up, and ligated in sections down to one-half its insertion into the uterus; the other side was then raised up and ligated in a similar manner. The peritoneum was separated anteriorly and posteriorly, the vagina opened behind and ligated in sections. After the removal of the uterus and sponge in the abdomen and cleansing of the cavity, the peritoneum covering the bladder and that in front of the rectum were brought together, shutting off the vagina from the peritoneal cavity. Then the incision in the posterior peritoneum was also closed, some iodoform gauze introduced into the opening of the wound over the rectum, and the wound sutured.

The operation was attended by some shock, so that three hypodermic injections of strychnine were given, the first one-twentieth of a grain and the others one-sixtieth each. Her temperature after the operation was 97°. The patient experienced no special inconvenience or distress, not near so much as is usually experiened in abdominal operations. Highest temperature reached was at 7 P.M. on the sixth day, which was 101°. With this exception the temperature was not over $100\frac{2}{5}°$. I was obliged to leave the city before the wound had completely healed. Upon my return, after a five weeks' trip, I found the wound healed and showing a very slight cicatrix. There is some depression over the point at which the bone was excised, but she has experienced no inconvenience in locomotion. For a time the part was tender on sitting down. This, however, no longer occasions her any discomfort.

The operation was chosen on account of the undilated condition of the vagina, situation of the uterus, more or less fixed, at a high point, and the involvement of the ovaries and tubes and their displacement downward posteriorly, making it evident that it would be a difficult operation to do through the vagina. Here the sacral resection was made upon the right side, for the reason that, as has been mentioned, the rectum normally occupies a position more to the

left of the pelvis, and in this direction the displacement of the rectum would be less by such an incision. The operator was astonished to find the ease with which the uterus could be reached and the different manipulations accomplished for its complete removal.

In the removal, the broad ligaments containing the ovarian and uterine arteries were tied, first upon one side and then upon the other. The tubes and ovaries were quite large and were detached after ligation of the enclosing broad ligaments. The patient recovered good health and has experienced no inconvenience since, during standing or walking, from the absence of the resected part. The pelvic floor, as a result of the cicatrix, is firm, and that weakened support as an objection is improbable is rendered evident by the case mentioned by Hochenegg, in which, after sacral resection, the patient became pregnant and gave birth to the child without any undue inconvenience.

In the first case, however, the choice might be equally divided between the sacral and abdominal procedures; indeed, it is probable that by placing the patient in the Trendelenburg posture the abdominal incision would be the preferable one.

One would be astonished, however, who had not practised sacral resection, to realize how readily the structures can be reached and every detail of the procedure accomplished under the eye, thus enabling the operator to make sure that the vessels are thoroughly secure, that hemorrhage is controlled, and to so suture the parts that the possibility of unpleasant adhesions or displacement will be improbable. The operation is worthy of consideration in cases of retro-uterine pelvic tumors, whether intra- or extra-peritoneal. The advisability of the procedure in tubal diseases may be questioned, unless it is in those cases in which the tubes are situated low down in the pelvis behind the uterus, and could thus be reached with less interference with the peritoneal cavity.

In cases of retro-uterine or pelvic abscess, where Nature, early recognizing the gravity of the condition, has thrown out her barriers shutting off the peritoneal cavity, the advisability of reaching the pelvis through the sacrum should receive worthy consideration. The drainage in such cases would be far more effective, the cavity could be irrigated and washed out, and pus tubes dissected up, without opening the greater cavity of the peritoneum and subject-

ing the patient to the influence of the absorption of a large amount of septic material, as in these cases the incision through the sacrum, pushing the rectum to one side, will enable the operator to empty out the pus collection, to thoroughly irrigate the cavity, and to subsequently examine it without opening the general peritoneum and consequently with less risk to the patient.

In conclusion we would earnestly advocate the performance of sacral resection:

1. In all cases of malignant disease of the middle and lower third of the rectum.

2. In every case in which the establishment of an artificial anus is necessary and it is possible to bring down healthy gut to the lower border of the resected sacrum.

3. It affords a ready method of reaching the retro-uterine extra-peritoneal tumors, as well as those situated within the peritoneal cavity behind the uterus.

4. The application of the operation to the removal of the uterus would be limited to those cases in which the vagina remains undilated and the uterus is more or less fixed, and even in such cases the choice may lie between sacral resection and abdominal incision.

5. It does not seem preferable in operation for disease of the Fallopian tubes, as they can be reached more readily through the abdominal incision.

THE RECONSTRUCTION OF THE PELVIC STRUCTURES IN WOMAN — THE ADVANTAGES DERIVED FROM THE USE OF THE BURIED TENDON SUTURE.

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The restoration of the pelvic structures of woman to a normal condition affords a wide field for plastic surgery. It involves not only a discussion of the various lesions to which woman is liable, incident upon parturition, but also the pathological conditions of the vulvar structures which come within the range of surgical consideration.

First in order: The external organs of generation. A rare form of disease, especially seen in elderly women, is carcinoma involving chiefly the cutaneous glands—the so-called skin cancer. It frequently begins as a superficial nodule, or as a trifling wart. It may be observed as an eroding, very superficial ulcer. There is usually present, as an early symptom, intense pruritus, and the itching sensation causes a spread of the disease by the injury of the parts from friction, scratching, etc. The true nature of the disease may be undetected until too late for the best results to be obtained, since it is rare, and may be called vulvitis, ascribed to a variety of causes, and is generally only determined because the patient has grown steadily worse for a considerable period, notwithstanding the means which have been employed for relief. I have met with this disease, commencing usually as a thickening and reddening of the skin extending over various portions of the labia majora. It is comparatively inelastic to the touch, and upon careful inspection in its early stages, or upon the borders of the advancing disease, there will be found minute ulcers—places where the superficial cells have been eroded and the cutaneous nerves exposed. It is of primal importance to make an early diagnosis and promptly to remove the structures involved.

The dissection should include the tissues quite beyond the parts apparently affected, since the disease may usually be traced within structures seemingly healthy. When the lymphatic glands have escaped the deeper parts are rarely invaded, and the superficial tissues only are to be removed. Such wounds should be primarily closed, and I think it very important to do the operation with strict aseptic precaution. This includes a careful disinfection of the parts, shaving, and the application of a sublimate pad some hours previous to the operation. When the dissection has been neatly effected, the deeper structures should be coaptated by a layer of buried tendon sutures and the skin sutured with care as follows :

Having closed the deeper structures, a small Hagedorn needle threaded with fine tendon is carried through the skin at some distance from one angle of the wound. The needle is best held in the fingers, and is inserted into the deeper layer of the skin, *parallel* to the divided edge of the skin and two or three lines from it. It should penetrate through the cutis vera only. The needle is then inserted in a similar manner through the deep layer of the skin, beginning at a point exactly opposite the emergence of the suture from the other side of the wound, each stitch being usually taken about one-quarter of an inch in length. The suturing is continued in this way through the whole length of the incision, the needle finally emerging at some distance from its opposite angle through the skin. If the suture is not closely drawn, that portion between the stitches will be at right angles to the wound. When, however, traction is carefully made upon the suture, it brings together the edges of the skin quite after the manner of the lacing of a shoe. There is an advantage in having each end of the suture free at a little distance from the angles of the wound, in order that coaptation may be carefully made by tension in opposite directions. Otherwise slight folds or puckers are liable to occur, which give the wound a wavy look. When carefully coaptated the wound must be thoroughly dried, in order that minute blood-clots may not separate the edges of the skin. After this has been effected the coaptated edges are sealed with iodoform collodion, which makes a germ-proof dressing. When this has dried, the distal ends of the suture are cut short and allowed to retract beneath the skin. An aseptic wound thus closed must remain aseptic.

THE VULVO-VAGINAL GLANDS.

From a variety of causes these glands may become infected and purulent collections supervene. When thus diseased they are so changed that they can never be restored to their normal function. The common method of waiting until they discharge spontaneously, or open as an ordinary abscess, is unwise and should be condemned. The pain is usually sufficient to cause the sufferer to consult her physician at an early stage of the disease, and then just within the swollen, tender vulva may be felt a small, movable tumor; the involved gland is within its capsule, and the surrounding tissues are uninfected. At this stage of the disease the dissection is easy and the surrounding tissues are to be coaptated and closed. The iodoform seal will not remain upon the mucous surface long unloosened, but the repair processes are rapid, and the wound is closed by cell-proliferation in a very short time. Pain and suffering are at once removed, and the patient may not even be confined to bed beyond the recovery from the anesthetic. The operation may be made painless by the injection of cocaine, but in my experience the tissues infiltrated with the cocaine solution undergo less rapid repair. When suppuration has already taken place the dissection is much more difficult, and the wound is liable to become infected and primary union fail. This can usually be avoided, but if suppuration occurs the wound should be packed with iodoform gauze, and the recovery is somewhat slow and tedious.

A much more rare affection is a cystic degeneration of these glands. This disease is of slow development and the tumor may become of considerable size. It is sometimes difficult to determine the condition with exactitude, since a pudendal hernia may exist as a permanent fluctuating tumor. I have removed a glandular cyst of the vulva, quite fist-sized, which had been diagnosed as a hernia. The large pocket remaining after the dissection should be closed from the bottom by buried sutures and the surfaces carefully coaptated and sealed.

VARICOSE VEINS OF THE VULVA.

In a minor degree this is a very common affection and is a cause of much suffering. When the vulvar plexus of veins has become

ectasic in a manner to cause a marked soft pudendal swelling, operative measures should be favorably considered. These are radical and not serious. Varicocele in the male has long been considered a distinct surgical affection, and yet the ectasic vessels of the vulva have generally been regarded beyond surgical relief, although the suffering has been distinctly recognized and the danger from rupture of the vessels in labor has long been known.

Under antiseptic precautions the vessels may be ligated without much difficulty, or even portions of the plexus removed. The one marked danger from sepsis in operating upon these structures is ever to be borne in mind, but when the wound is maintained aseptic the tissues of the vulva undergo rapid reparative changes owing to the exceptional vascularity and vitality of the structures. It often will be of value, in coaptating the tissues, to bury a line of sutures, quite deeply taken, in order to constrict vessels which have not been isolated and included in the ligatures. The importance of complete aseptic closure of the wound and protection with the iodoform seal cannot be overestimated.

The larger thrombi, which sometimes are so extensive as to threaten gangrene of the parts, are often better treated in this manner—a safe procedure when the tissues are maintained aseptic. When the clots have been turned out, not infrequently there will be considerable arterial hemorrhage. This is best controlled by deep buried sutures and the wound closed.

THE CLITORIS.

This organ is subject to a variety of diseases. It is, however, very seldom that the surgeon is obliged to remove it. When required to be removed for disease other than cancer the operation is comparatively simple and easy. It must be remembered that the tissues are very vascular and that the hemorrhage is sometimes troublesome. A V-shaped incision, with apex anterior to the glans clitoris, is carried on either side of the crura sufficiently downward to extend below the body of the organ, which is dissected free posteriorly. A branch of the internal pudic artery is distributed to each crus; this is sufficiently large to require usually a separate ligature, and the venous hemorrhage is much better controlled by the use of a fine buried suture introduced from side to side in a

manner to coaptate the borders of the gaping wound. The superficial sutures are joined by a line of buried parallel sutures and the parts sealed with iodoform-collodion. The advantages of irrigation are especially marked, since the wound is kept constantly clean without sponging, as well as aseptic. I have only three times had occasion to perform clitoridectomy where the pathological changes were so limited that I was enabled to complete the operation as above described.

Where the clitoris has become the seat of cancer the disease is usually so extensive that a plastic operation is impossible. Somewhat recently, in a woman quite seventy, I found the clitoris the primary seat of cancer. It had developed into a tumor quite the size of a hen's egg, flattened antero-posteriorly, and extended upon either side so as to involve the labia majora. The superficial surface was necrosed and the tumor troublesome from its hemorrhagic character rather than because of pain. Convalescence rapidly followed upon its free removal, and at last report there was no evidence of return.

The vulvar organs are not seldom advantageously subject to plastic operations following the removal of neoplasms, caruncular growths of the hymen, and in injuries in considerable variety, but which require in this connection only a simple reference.

THE RECONSTRUCTION OF THE FLOOR OF THE PELVIS.

The repair of the various lesions to which the pelvic structures of woman are liable, incident upon parturition, has proved a fruitful theme for discussion for nearly a generation. This is not the place to trace the history of the subject, or the evolution of the methods which at present dominate the surgical teaching in the different centres of civilization, although it has an interest and fascination far more than ordinarily pertains to most problems in surgery.

Within the last decade, owing to the researches of a considerable number of patient investigators, much new light has been thrown upon the causation and character of the injuries of the pelvic structures, until it may be readily accepted without discussion that the primal cause of by far the larger amount of suffering and subsequent structural changes in the parturient tract is incident to, and dependent upon, the weakening of the pelvic floor.

The levator loop which holds in its broad and firm grasp the lower portion of the bowel, arising from the crest of the pubis and attached posteriorly to the coccyx, itself a firm yet movable support, exercises a much more important function in the female than in the male. It not alone supports but lifts and throws forward the terminal portion of the rectum in such a way as to deflect it into an anterior curve, thus taking off the pressure upon the sphincter until the lower bowel is considerably filled with fecal matter, rendering it, so to speak, a convenient cesspool or receptacle for the waste material; it also presses upward the vulvar portion of the vagina, causing the vaginal muscle to become intra-folded upon itself. It is easily seen that the mechanical disposition of such a loop, embracing within its grasp two considerable openings, each independent of the other in design, and yet each in function occasionally occupying space belonging to the other, must needs have a stay, or lateral support, uniting and holding the two orifices. This is furnished by the transversus perinei muscles, which, with other groups of muscles and fasciæ less important to the present discussion, enter into and make up the perineum of woman.

In the normal condition and function of the pelvic structures, by the conjoined action of these two groups of muscles, the vagina is intra-folded in a way to produce in cross-section the resemblance to a modified letter H, most pronounced in its lower third, ending in its attachment to the cervix in an almost crescentic fold, while the contraction of the vaginal muscle itself throws the mucous membrane into circular folds—the so-called rugæ. The elastic column thus formed, in its normal state entirely obliterating the canal as an open space, is quite sufficient to support and hold the cervix uteri backward, while the fundus is, with a considerable limit of normal mobility, held by its lateral supports.

The weight of the abdominal contents is deflected by the promontory of the sacrum, forward upon the symphysis pubis and the recti muscles, thus giving the organs of the pelvis a minor portion of the burden of support, regardless of the position of the body. When the distribution of the superincumbent weight upon the parts is thus maintained, the pressure from above downward is sufficient to carry the fundus uteri toward the pubis, which still further aids in preserving the very considerable angle at which the uterus and the vagina join.

Weaken the floor of the pelvis by a rupture of the lateral supporting muscles, and the levator loop at once loses in large measure its important function of antero-posterior contraction, while the transversus perinei muscles, instead of holding the central raphe in tension as a point of support, by their contraction act to pull open the vulvar and vaginal orifice. When this takes place the anterior wall of the rectum, having lost its support, pouches forward, producing a more or less pronounced retrocele. The floor of the pelvis thus weakened, the vaginal orifice is necessarily dragged down with the prolapsing bowel, the tonicity of the vaginal muscle is lost, the cervix falls forward, the uterus changes its position so as to become, as it were, a wedge entering into and opening the upper portion of the vagina, inducing the various displacements of the organ so familiar to us all. The bladder in turn has lost its various means of support, and *pari passu* with the other organs is displaced, until at last every effort to empty the viscus still further adds to the disablement of its function and deformation of its structures.

The above rapid but graphic sketch does not include all the causes or conditions which enter into the composition of the complex problem of the displacements of the pelvic organs or lesions to which they are incident. However, it suffices for the purpose of this paper, and the brevity with which this portion of the subject must be discusssed, to accept it as primal, from which to draw a few most important deductions.

The problem which confronts the surgeon is to restore, as far as possible, the conditions of the pelvic organs to their normal state. This involves the subdivision of our subject of operative measures for plastic repair in accordance with the possible conditions present.

1. *The Cervical Portion of the Uterus.*—Except for the completeness of this sketch, this part of the subject might be almost wholly omitted. Thanks to the labors of our distinguished countrymen, the late Dr. Sims and his early associate, Dr. Emmet, the limitations and advisability of the surgical repair of the cervical tissues of the uterus are generally well understood and accepted by the profession. Little is required to be added for the completeness of our knowledge to the present date upon the surgical treatment of laceration of the cervix uteri.

The restoration of the cervical tissues after the proper refreshment of the edges is greatly facilitated by the use of the Hagedorn

needle, which pierces accurately and with comparative ease the thick, firm cervical tissue. The interrupted silver-wire suture, so long used by the followers of these great masters, has been most advantageously supplanted by the continuous animal suture, since this at least equally well holds the restored parts *in situ* and demands from the surgeon no attention subsequent to the completion of the operation. This is in every way a great gain by allowing the parts to remain continuously at rest, saving the patient also the anxiety and dread of suffering consequent upon the removal, and the surgeon oftentimes a delicate, troublesome manipulative operation in hunting after and dislodging the loops of wire.

More important than all, however, it is a great gain in that the surgeon may at once proceed to the performance of other operations, if, as is generally the case, such are deemed necessary. I suppose it need scarcely be added that the manipulative procedures, at least in the present state of our knowledge, are decidedly safer when performed in the most careful aseptic manner, including irrigation with the mercuric bichloride solution. I have found the operation quite simplified by the use of a depressor speculum, irregularly broadened at its inner portion, and the handle hollow for the escape of the irrigating fluid. This allows a much firmer grasp upon the levator loop, and correspondingly permits a foreshortening of the depressor portion, which scarcely exceeds two inches in length. With a freely movable uterus, the cervix, without damage to the organ, is brought almost to the vulvar opening. A vaginal tampon impregnated with iodoform completes the dressing. (Plate I.)

2. *Operations upon the Vaginal Roof.*—The first in importance, although not in frequency, of the lesions of the superior structures of the vagina is that of vesico-vaginal fistula. Here, as elsewhere, I pause for a moment to consider the monumental labors of our great founder of gynecology. Without appreciating that the first great cause of the failure of the sutures, as then applied, was due to septic infection, Dr. Sims accepted the metallic suture as a great gain over all material hitherto used, from the fact that it remained in the wound as an "unirritating" suture. He demonstrated the better methods of repair, emphasized the primal importance of introducing the suture so as not to include the mucous membrane, and worked out with painstaking care the methods of complete closure of the wound and retention at rest of the coaptated surfaces.

His dexterity, skill, and fertility of resource will remain the admiration of all surgeons.

In this operation, however, I have advocated and used for some years, in quite a variety of conditions, the continuous tendon suture, which I think preferable to wire for the same reasons as those advanced in the consideration of its use in the repair of cervical lesions.

The secret of success in the use of the tendon suture is the same that pertains to Dr. Sims' operation, greatly aided, however, by our knowledge and appreciation of aseptic conditions, without which failure will ensue, no matter how carefully we obtained what Dr. Sims considered as the fundamental factor—retention at rest of the carefully approximated refreshened surfaces by means of the "non-irritating" metallic suture.

3. *Cystocele.*—The condition is not exceptional where, for reasons already referred to, the anterior wall of the vagina has become so deformed that it produces a protruding pouch which contains the base of the bladder, descending on a plane below that of the meatus. Fortunately for the surgeon, the conditions here are quite unlike those which pertain to the posterior segment of the vagina in rectocele. Owing to the more or less constant effort in micturition, and other causes, the vagina, although weakened as a means of support, has become greatly thickened anteriorly and its vascularization increased.

The surgeon, having determined upon a re-formation of the vaginal tract, after duly cleansing the parts, marks out the portion which he intends to resect. The size and shape of the piece to be removed will, of course, depend upon the conditions present. It may be a simple ellipse, or it may be deemed wise to remove in addition a portion upon either side near the cervix, posssbly the entire cervix in certain cases of hypertrophy of the organ.

To the beginner few plastic operations are attempted with more dread, owing to the fear of wounding the bladder. It was on account of this that most of the early operations, where the attempt was made to pare off with the scissors the mucous membrane only and intra-fold the vaginal muscle, resulted in failure. The method of operation is really simple. At the commencement of the prolapse, above the urethra, a division is made entirely through the vaginal muscle to which the bladder is loosely connected. With a

little care, by means of scissors, the desired resection is made, the loose connective-tissue attachment to the bladder making the separation easy. When in doubt it is well to minimize the piece removed and adjust the edges, the better to determine the effect, since it is easy to pare away the redundant tissue afterward, if necessary. I cannot help thinking that the following method of suturing is to be recommended as a great improvement over that generally in use. By means of a fully curved Hagedorn needle introduce aseptically the animal suture, preferably tendon, in the following manner:

It is presumed that the operation thus far has been done in the lithotomy position, the parts having been fully exposed by the use of the retractor speculum. The continuous stream of the irrigator washing the parts clean, the bladder wall is elevated by some flat instrument and the suture in introduced, commencing at the cervical portion, from a quarter to a third of an inch, deeply within and away from the cut surface of the vagina, from side to side, in a continuous running or lacing stitch. This stitch I have named the "parallel" suture, since the needle enters and emerges parallel to, and just within the cut margin of the wound. It must be remembered that the needle in each subsequent stitch enters exactly opposite the point of emergence of the preceding one, or else the coaptation will be imperfect and the line of union wavy or puckered. This completely approximates and supports the divided edges of the vaginal wall, the buried sutures lying at some distance from the meatus in front, within and away from the cut surface.

A second line of sutures is carried from within outward, beginning at the cervical portion of the wound, through the deeper portion of the vaginal wall, parallel to the first line, closely uniting the divided edges, and yet none of the sutures penetrating through the mucous membrane, thus making a second line of buried sutures.

Finally the suture emerges very closely to the exit of the first, where the two may be joined by a knot and the ends cut short. The vaginal wall is now very carefully dried, dusted with iodoform, painted over with iodoform collodion into which a very few fibres of cotton are introduced, and a dry tampon of iodoform wool is applied within the vagina.

This method of uniting the refreshened parts in vesico-vaginal fistula is sometimes advised where the wound is sufficiently large to permit the union of the tissues by burying the sutures in their

different layers. In both cases a retaining catheter for some days should allow the free escape of the urine, in order that the approximated tissues may remain at rest.

There are also certain lesions of the upper portion of the vaginal tract which should be kept in mind, although of rare occurrence, where in parturition the dilatation of the cervix has been imperfect, and thus it has been carried down before the advancing head, producing injury to the vaginal attachments independent from that of the laceration of the cervix itself. Occasionally plastic operations upon the vaginal tract are required for the restoration of this lesion.

A rare form of injury to the parturient canal has been pointed out by Dr. Emmet, of New York, of which I have seen but a single complete example, although it is, in a minor degree, often found associated with lesions of the perineum. It consists in a more or less complete tearing away of the vagina from its connective-tissue attachments to the surrounding organs by its becoming folded over, or fixed, so to speak, to the advancing head of the child. It is important to bear in mind the possibility of this lesion, of which the following case is an exceptional illustration:

Mrs. M., aged twenty-eight years, otherwise healthy, was sent to my hospital in 1889 under the supposition that she was developing cancer of the vagina. Her history, briefly, was that about eighteen months previously, after a long and tedious labor—her first pregnancy—she was delivered instrumentally of a stillborn child. Convalescence was slow and imperfect, with much local pain aud discomfort continuing to the present. There was a moderate laceration of the perineum, but just within the vulva there was a firm, hard, inelastic ring which barely admitted the tip of the index finger. Upon dissection it proved to be cicatricial, consisting of a fold of the vaginal muscle which extended upon either side nearly to the meatus. Restoration of the parts was effected by dissecting three-quarters of the vagina from its vulvar attachment for more than half of its depth. The perineal structures were then restored and the vaginal tissues normally rejoined to the vulvar outlet. A rapid convalescence followed, with entire relief to the patient and complete restoration of the parts.

4. *Repair of Laceration of the Perineum.*—When the lesion is incomplete the floor of the pelvis presents a great variety of changes, dependent upon the degree to which its structures have been

weakened. When the sphincter fibres remain uninjured, the transversus perinei having been separated and by their perverted action the levator loop drawn apart, a more or less pronounced rectocele is usually present. Obviously the chief factor in importance is the restoration of the normal relation of the grouping of the sundered muscles which go to make up the pelvic floor. A careful examination of the anatomical relation of these structures will make it apparent that the injury sustained by the parts is *posterior* to the vagina, and hence operative measures undertaken for their restoration must include the parts involved. (Plate II.) It is clear that this is not the vagina, and yet, singularly, nearly every surgeon contents himself by operating on the vagina after denuding it of its *mucous surface only.* It is true it is deformed, oftentimes stretched out to a thin muscular coat, the rugous surface of its mucous membrane entirely wanting, and yet nearly every operator classed as an authority has dwelt at great length upon the importance of denuding its *mucous surface only* with the greatest care, and then intra-folding it with stitches taken in every variety of manner and combination of lines, confusing in detail and grading into each other in kaleidoscopic pattern. It is owing to a lack of correct anatomical knowledge, in by far the larger measure, that such confusing and uncertain ideas are held by the profession generally, which make the repair of the perineum, as usually performed, one of the most unsatisfactory of operations in surgery.

If it is true that the structures that make up the pelvic floor, and not the vagina, are the parts at fault, then it is equally clear that these are the tissues which merit and should receive our attention. It is not for a moment to be doubted but that most operators have, in a certain degree, included these sub-structures in their operations upon the denuded vaginal muscle; but, at the best, this is accidental, faulty, and liable to failure, as we have observed in a similar operation when undertaken for cystocele. I believe the true *rationale* of operative procedures and consequent satisfactory result should be based upon making the dissection BEHIND the vaginal muscle, and not *upon* it.

In incomplete ruptures with more or less prolapse, the transversus perinei muscles can no longer be felt as a band in front of the rectum and the levator loop has lost its tonicity. The restoration

of these with the various attachments of the sundered groups to their normal relations and conditions is our object. (Plate III.)

The operation is simple and easy. The patient is placed upon a table in a good light in the lithotomy position. An inflated rubber irrigation receptacle, with a large efferent tube, is put under the hips. This is a great convenience for purposes of cleanliness. They were first made more than ten years ago by the Davidson Rubber Company, of Boston, at my suggestion. Somewhat recently they have been introduced, with slight modifications, to the profession as the "Kelly pad." The irrigation, with a 1 : 2000 sublimate solution, is under the direction of an assistant, and the entire operation is conducted with aseptic care. After the sphincter has been stretched and the lower bowel washed out, introduce into the rectum two fingers of the left hand, which are not withdrawn until the operation is completed. Usually about the posterior third of the vagina is separated with the knife or scissors from its vulvar attachments. The separated flap is lifted and held by an assistant. Then, by means of a large, curved needle firmly set in a handle, with eye near the point, I carry the tendon suture deeply from side to side through the base of the wound, guiding the point of the needle upon the fingers in the rectum so as not to puncture it. The suture loop is evenly drawn and may be held by the fingers of the assistant for the fixation of the vaginal flap. The threaded needle is again introduced, a little external to its first insertion so as to include the separated ends of the traverse muscles, unthreaded, rethreaded with the opposite end of the suture, and withdrawn. (Plate IV.)

A careful inspection of the vulva renders it easy to determine the commencement of the lesion, to which point, on either side, the incision must be carried. The recto-vaginal space is readily found, and the dissection is made as far up as the crest of the rectocele, and into the lateral sulci on each side as far as is necessary to reach the retracted transversi. These lateral sulci are formed by the retraction of the ends of the transversus perinei muscles, and it is important to dissect freely laterally, for the reunion of these structures is dependent upon the ability of the operator to seize upon and coaptate them in the grasp of his sutures, thus rejoining them upon the median line.

Dr. Emmet has very wisely pointed out the importance of taking up "the slack" in the vaginal tissues by his Y-lines of suturing,

but it seems to me that he has failed to emphasize the pathological conditions and the causes which have produced them.

In rectocele with prolapse and large, deep sulci, the buried sutures are taken more deeply laterally and internally, from side to side, in order to join the separated fibres of the levator loop with the retracted transversus perinei muscles. Usually four or five double stitches are required. They are secured by a knot and the ends cut short. The remaining tissues are coaptated by a light running suture taken from side to side until all the structures are rejoined. It is sometimes better to remove a small portion of the redundant deformed vaginal tissue, but, as a rule, it is safer to leave it, since it forms an excellent protection to the wound from infection by the vaginal secretions. The coaptation is completed, every stitch being taken so that the suture is not in sight, all stitches remaining completely buried. The parts are carefully dried, dusted with iodoform, and covered with a very thin layer of iodoform collodion slightly strengthened with a few fibres of cotton.

When the dissection has been properly made, the tissues thus coaptated constitute a firm, deep perineum. The finger introduced into the vagina recognizes at once the tense reconstructed pelvic floor. With proper dexterity the vulvar organs are re-formed to the condition of those of the woman who has never borne children, and if the reunion is primal—which should follow if the operation has been done aseptically—the convalescence is rapid, without pain or edema of the parts.

It is well to cause defecation not later than the third day; micturition in the knee-chest position may be voluntary, but great care must be exercised to prevent the wetting of the restored tissues with the urine. No especial restraint of position of the body is required; a semi-reclining posture may be assumed within a few days, and the patient allowed to sit up for short periods of time after the first week. Beyond the careful attention to maintain the parts aseptic, no subsequent dressing is needed. This has been best effected in my experience by keeping the parts dry by the occasional change of the vaginal dressing and frequent dusting by the use of the iodoform blower.

After some months it is often difficult to trace the line of reunion, even in a careful examination. Somewhat recently I have had the opportunity of examining a patient for whom, more than twenty

years previous, I had restored the perineum, and I found the condition that of a woman who had never borne children. During the many years of my surgical experience, after a great variety of modification in detail, I have adopted the above method as eminently satisfactory. My experience comprises several hundred cases thus operated upon, and it is the very decided exception that failure *in any degree* results. If for any reason failure does ensue, the tissues are in a better condition for subsequent operation than by any of the surgical measures usually recommended, since *no tissue* has been removed, all having been utilized in the restoration of the parts.

The inquiry has been made, In what does the above-described operation differ from the so-called flap-splitting operation credited to Mr. Tait? Greatly in *rationale* as well as procedure. The causes and factorage of the conditions rendering surgical measures necessary have not been emphasized either by himself or his followers, and the operation itself, as I have seen it performed, seemed to have but the one purpose—a wide lateral and rather superficial division of the vulvar structures, with coaptation of the everted flaps by a single row of interrupted silkworm-gut sutures, which in tying must lessen the depth of the perineum, and which must be afterward removed.

The above method has a marked advantage over the operations usually described, in that the dissection is *behind* rather than *upon* the vagina, but no intelligent effort seems to have been made to restore the normal relations of the sundered muscles. Mr. Tait and I have each been accused of appropriating the ideas of the other. For my own part, I never heard of the flap-splitting operation of the Birmingham surgeon until after I had repeatedly published upon the subject, and this may be equally true of Mr. Tait.

Operative measures advised when the rupture is complete do not differ materially in principle from those advocated in incomplete rupture. Here, for apparent reasons, rectocele is absent and the hemorrhoidal venous plexus does not undergo deformation. The edges are slightly refreshed, and the vagina is dissected away, from each side of the rent, as far as may be deemed necessary, usually, as already recommended, to include about the posterior third.

The dissection is continued posteriorly on each side of the sphincter ani, in order to be able to reach the retracted ends of the torn sphincter muscles. The lower border of the rectum is

re-formed by a line of continuous tendon suturing, commencing a little above the rent in the line of dissection which has been made between the vagina and the rectum. The stitches are taken from side to side laterally within the margin of the refreshened tissue, and the suturing is continued quite to the re-formed anal outlet, the end of the suture being left unsecured until a later stage of the operation. It will be noted that this running or lacing suture when drawn upon is entirely buried within the refreshened tissues, while it everts the coaptated mucous membrane of the bowel toward the rectal side. A similar line of suturing coaptates and restores the vagina. The uncut end of the suture serves conveniently the purpose of lifting upward the vagina by the assistant during the process of coaptating the severed structures, which is done precisely as recommended in the reconstruction of the parts in cases of incomplete rupture. The double tendon suture is applied deeply on either side of the sphincter, in order to coaptate the retracted ends of this muscle. In the failure to do this a weak sphincter will frequently be the result, even if complete success has attended the restoration of the other structures.

Preliminary to the operation it is important to have the lower bowel well emptied, thoroughly cleansed with an injection of sublimate solution, and a considerable ball of iodoform wool, with a string attached for subsequent withdrawal, should be introduced high up in the rectum. It is better to have the bowel moved by the fourth day, and a rectal tube may be inserted as early as the patient seems disturbed by flatus. By this process of restoration the so-called pin-hole or recto-vaginal fistula can very rarely occur; in fact, I have never observed it, although so commonly resulting by the methods usually advised. Success depends, of course, upon performing the operation with the strictest aseptic conditions, and retaining the parts devoid of infection during the process of repair. I have frequently seen this most troublesome affection cured as completely as when the operation has been undertaken for the simplest of lesions. A recent case of cure is an illustration, operated upon in my hospital, where entire failure had followed in each of four successive operations in the hands of an experienced surgeon, with the patient under hospital oversight and control.

In a former communication to this Association I presented in detail my views upon the anatomy and physiology of the perineal

structures as the basis from which to determine the proper methods of reconstruction of the perineum. Subsequent experience only confirms the belief in the correctness of my views as then enunciated.

I cannot help thinking that the measures above described are to be earnestly commended as simple, safe, and effective; but they must be executed with the most rigid aseptic precautions, without which failure will not only ensue, but the gravest dangers, not alone to the parts involved, but to the life of the patient, may readily follow.

HEMORRHOIDS.

The pathological conditions which pertain to the rectal tissues result in a very large degree from changes in the vascularization, dependent upon the dilatation of the hemorrhoidal veins. These are often deformed to an extent rarely appreciated by the ordinary practitioner, and only to be truly understood by the surgeon who makes the vivisection for the purpose of cure.

I am constrained to believe, as I think for abundant reason, that the ligature and cautery, destruction of the tissues by acids, etc., are not alone unsurgical and barbarous, but they also often fail in the end of securing the desired result, since a portion of the deformed structures not seldom remain unchanged, and tissues of importance to preserve are thereby frequently destroyed.

A complete dissection of the deformed hemorrhoidal plexus, as advocated by Mr. Whitehead, offers, in my judgment, abundant reason for adoption, and the only criticism which I have to make upon his method is the closure of the wound with interrupted sutures. This method has been severely criticised, and has failed in great measure of general adoption because of the fear of hemorrhage which, during the indefinite past, has been emphasized as liable to pertain to any of the methods applicable to the cure of hemorrhoids. This is doubtless greatly overestimated by the profession at large.

The dilatation of the hemorrhoidal plexus is, indeed, sometimes truly enormous; but it will be found upon dissection that the vessels quite within the grasp of the sphincter are usually very little changed, and that here their constriction is simple and easy. I have for some years operated in a way to be commended as in large measure bloodless and assuredly without danger of subsequent hemorrhage.

The procedure is briefly as follows: The sphincter muscle is dilated and the parts put on tension by two fingers in the rectum. Either with a sharp knife or scissors division is made upon the line of the juncture of the skin and mucous membrane. With a little care the veins are separated from the loose folds of connective tissue without injury down to the line of the sphincter muscle. They will be found closely connected with the everted, thickened mucous membrane, a portion of which it is well to remove. Division should be made through it upon the line selected for excision, and a row of continuous double tendon sutures is rapidly made to encircle the base of the hemorrhoidal plexus. It is then resected with scissors, and a light line of continuous running sutures encloses the deeper layer, and when drawn upon gently, taken, as advised, from within outward, are themselves buried, thus leaving no stitches in sight. Carefully dried and dusted with iodoform, the operation is completed by painting the line of closure with a layer of iodoform collodion. It is usually better that three or four days elapse before defecation ensues, after which there is little suffering. With the paralyzed muscle at rest, the condition of the parts remaining aseptic, pain and edema are almost entirely wanting, and the contrast between the suffering and too often defective result pertaining to the measures usually in vogue is so marked that I cannot help thinking that he who gives this method of operation a careful trial will abandon all others for the cure of hemorrhoids.

It very commonly happens that the injuries to the pelvic structures are multiple; that the cause which produces a laceration of the cervix at the same time weakens or destroys the pelvic floor, the resulting product of which confronts the surgeon. The factorage of this consists generally of a lacerated cervix, a displaced uterus which has become greatly enlarged, associated with a pronounced endometritis. When the sphincter ani muscle has escaped injury, and the levator loop is weakened by the loss of its transverse supports, a more or less pronounced anterior bulging of the bowel ensues—a *rectocele*. The excision of the vaginal outlet thus induced causes, as a remote result, the prolapse of the anterior wall of the vagina, with vesical tenesmus produced by the falling of the fundus of the bladder—a *cystocele*. The pathological series is often completed by a great dilatation of the hemorrhoidal plexus of veins induced by the difficulty of defecation, one of the results of the

disturbed circulation of the pelvic vessels. Few of the modern innovations which have so completely revolutionized surgery are more pronounced than the facility and rapidity with which we are now able to restore these structures to their normal relationship.

Until very recently—and, unfortunately, in accordance with the teachings of most of the text-books at the present—this class of sufferers, even in our special hospitals, have been subjected to weeks of confinement in bed, the so-called preparatory treatment, and *seriatim* one operation after another of the four or five demanded for cure is performed, with an interval of some weeks between each for the necessary recuperation of the vital powers, thus requiring a period of several months' detention in invalidism.

This method of procedure is in large measure necessitated when the suture material used must be removed. Silk may, it is true, ulcerate its way out if left alone, but few operators desire this, while wire and silkworm-gut must be removed. One of the most marked advantages of modern wound-treatment under aseptic precautions is the great gain derived from *combined* operations which the use of animal sutures has rendered possible. So far as I can learn, these are rarely practised, or their importance, even in a theoretic way, appreciated. For the last five or six years combined operations at a single sitting have been with me a matter of almost daily routine practice, and their value emphasized in my teaching.

In illustration, in the foregoing group of injuries the first operative measure should be a thorough curetting of the endometrium, since glandular hyperplasia is usually coexistent with subinvolution and misplacement. Next should follow the repair of the cervical laceration, which may be single or multiple. If the conditions are pronounced an intra-uterine drainage-tube is necessary. Third in the series of operative measures may come the resection of the anterior portion of the vaginal wall. Fourth, the restoration of the structures of the pelvic floor—the repair of the perineum—should be performed. Finally, the dissection and removal of the hemorrhoidal plexus should be made. To this series I have not seldom added other operations—as, for instance, the removal of superficial tumors, or even the operation for the cure of hernia. The abundant experience of the years teaches that the so-called preparatory treatment is not necessary in most cases, but, as a rule, is positively harmful. The general nutrition and vigor are lessened

rather than increased by the period of detention in bed, while the nervous tension of the individual is oftentimes painful to witness, increasing daily as the time approaches for the much-dreaded operation.

The reparative processes in these multiple wounds, when aseptic, progress equally satisfactorily, with very little if any additional suffering or danger, while the period of months is foreshortened to weeks with a corresponding lessening of pain, loss of time, expense, and suffering.

En résumé it will be seen that the above group of operations are based upon a tripod of simple factors:

1. Clean dissection in aseptic tissues, aseptically maintained.

2. The restoration of the parts to their normal relations by means of the animal suture, preferably tendon aseptically buried, and the wounds protected from external contamination and infection by the simplest possible methods of dressing.

3 Retention of the parts at rest. The tissues aseptically held at rest for a few days only, take on the processes of repair almost without pain, edema, or suffering. The collodion seal is less satisfactory in wounds of the mucous surfaces than upon the skin; however, it is surprising to note the rapid changes inductive to repair which go on in an aseptic wound, and to this end external protection, after a brief space of time, is far less important than was earlier supposed.

In the light of great principles founded upon scientific data of practical value for the well-being of our race, personal questions sink into insignificance and are deservedly worthy to be forgotten. However, I trust it will not seem presumption in claiming for myself the merit which I know a generous profession is willing to grant to all scientific measures which are deemed worthy of approval. The use of the buried animal suture seems almost a corollary to the problem of aseptic wound-treatment, especially when we take into account that the great principles upon which its adoption is based were clearly demonstrated by the immortal founder of antiseptic surgery. Mr. Lister traced with painstaking fidelity the changes which ensue upon the closure of a great vessel by the animal ligature when aseptically applied. Indeed, these changes when the wound chanced to be aseptic were as clearly pointed out, and the results demonstrated, in the early part of the

present century by American surgeons, whose work is now well-nigh forgotten, although deserving a permanent place in the history of surgery. Dr. Jamieson, a distinguished surgeon of Baltimore, published a prize essay in 1827, replete with demonstrations upon the lower animals, in which he traced with rare acumen the changes which ensue in the ligation of vessels in continuity with the *animal ligature.* The material used consisted for the most part of narrow strips of deerskin, tanned after the methods in use among the Indians. The skin, when finished, was soft and pliable, resembling the chamois skin of commerce, although a very much stronger and tougher product.

Dr. McDowell, the founder of ovariotomy, used such a ligature for tying the pedicle in his first case of ovariotomy. The celebrated surgeons, Drs. Physick and Dorsey, of Philadelphia; Dr. Nathan Smith, of New Haven; and others, including Sir Astley Cooper, of London, made use of such ligatures and commended them.

Governed, however, by the theories of irritative conditions, inflammation, and vascular changes which occurred in the tissues, the practical lesson which these men taught was lost to surgery, all obscured for the want of knowledge of the processes of repair in *aseptic* tissues, until pathological study, aided by the wonderful revelations of the microscope, demonstrated the well-defined limits of septic and aseptic conditions which pertain to wounds. Directly after having received personal instructions from Mr. Lister, in 1870, I operated upon a case of hernia where the abdominal opening was so very large that it became necessary to close it in order to retain its contents. This I did, although with much misgiving, with interrupted catgut sutures cut short and left within the tissues. The wound was dressed antiseptically, and primary union followed with a permanent resulting cure of the hernia. The lesson taught bore fruitage in a series of histological studies upon sutures buried in the tissues of animals, killed at varying periods after the introduction of the suture. The material used was primarily catgut, and afterward tendon taken from a variety of animals. I demonstrated that, little by little, the suture became infiltrated with new connective-tissue cells which in a very considerable degree not alone surrounded but replaced the buried animal suture with a vitalized structure.

The limit of this paper prevents further detail upon this most

important subject, except a brief reference to my publications upon it. My first case of operation, already referred to, occurred in February, 1871, and my first publication was in the Boston *Medical and Surgical Journal*, November 16th of the same year. I have repeatedly called the attention of the profession to this subject in various contributions published from time to time until the present. As far as I am aware, the priority of my publications upon the various uses of the buried animal suture has never been questioned in America; but in Germany I understand such honor has generally been accorded to Werth, whose first contribution was in 1876, five years after my first publication upon the subject.

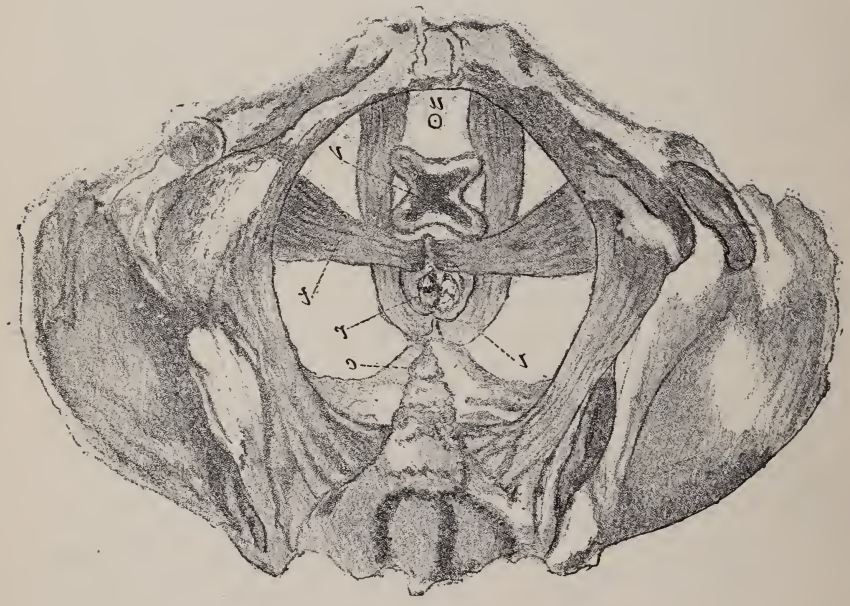
Experience in the hands of many operators has now clearly demonstrated the wide applicability and great advantage of the buried animal suture, covering the entire field of operative surgery, when *aseptically* applied, itself *aseptic*, in aseptic wounds. The advantages of this method in the treatment of wounds are the complete coaptation of the parts and the assurance of non-infection. Complete closure of an aseptic wound by buried aseptic animal sutures, retained at rest by means of a germ-proof dressing, comes nearer to the ideal than any method yet advised. There is no fear of hemorrhage in an aseptic wound thus closed. There is no further danger from infection, and clumsy, expensive antiseptic dressings are entirely avoided. If the wound is surgically clean, with accurate coaptation of the sundered parts, then the vital forces are sufficient to utilize any resultant exudates, and drainage is not alone superfluous but harmful, since wounds thus closed, no matter how large, including even the major amputations, may be sealed with a germ-proof dressing. Little subsequent care is requisite on the part of the surgeon or attendant, and the patient is relieved from the fear of suffering in the removal of sutures, is almost free of pain, and rapid recovery supervenes.

PLATE I.

A new depressor speculum.

This instrument has been devised as the result of the studies upon which the principles underlying the methods advised for the restoration of the perineum are based. Its simplicity offers little need for explanation. The vaginal portion is constructed so as to cause a minimum of pressure upon the vulvar outlet. It is irregularly broadened within, so as to secure a firm hold without slipping upon the levator loop, and this allows of depression without overstrain of the external tissues, and permits the foreshortening of the instrument to the minimum, scarcely more than one inch in length. When the uterus is of normal mobility the cervix may be easily brought to the vulva. The anterior vaginal wall and the uterus are, by its use, rendered much more accessible. The handle is made hollow for the escape of the irrigation fluid, and roughened for a secure hold.

PLATE II.



The outlet of the pelvis with its ligamentous attachments, showing the relations of the levator loop and transversi perinei muscles (diagrammatic). *u.* Urethra. *v.* Vagina. *r.* Rectum. *c.* Coccyx. *l.* Levators. *t.* Transversi perinei.

PLATE III.

Fig. 1.

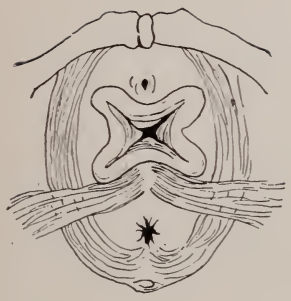


Fig. 2.

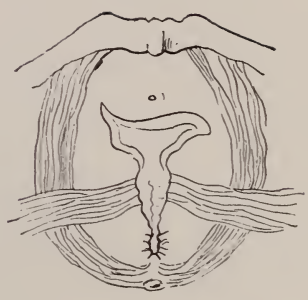


Fig. 1.—Diagram showing the relation of the uninjured muscular attachments of the levator and transversus.

Fig. 2.—Showing a central lesion, the transversi slightly separated, the levator loop weakened in its support, causing a relaxation of the posterior wall of the vagina. If complete, loss of septum.

Fig. 3.

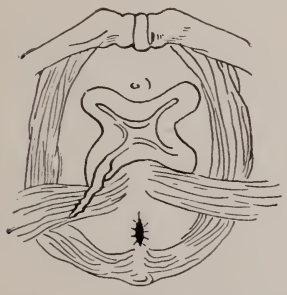
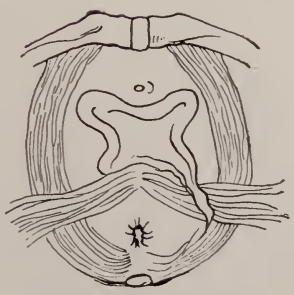


Fig. 4.



Figs. 3 and 4 showing lateral rents separating the transversi, with more or less injury to the levator loop.

PLATE IV.

FIG. 1.

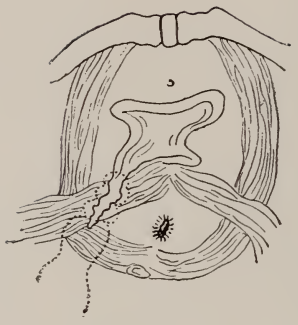


Diagram showing the union of the deep lateral sulci by the buried continuous double animal suture.

FIG. 2.

Needle specially designed for the use of the double continuous buried animal suture. The eye is made large for ease of threading, and the lateral slots hold the suture from slipping.

ABDOMINAL SECTION FOR DIAGNOSTIC PURPOSES.

By CLINTON CUSHING, M.D.,
SAN FRANCISCO.

In the excellent book of J. Greig-Smith on *Abdominal Surgery*, he says, in speaking of exploratory incisions of the abdomen, "no incision ought to be merely exploratory." "The exploratory incision of the skilled surgeon is widely different from that of the tyro. Where the former will make a correct diagnosis in ninety-nine out of a hundred cases, the latter will fail over his tenth case."

However skilful the surgeon may be, I do not believe he can make an accurate and correct diagnosis in more than nine out of ten cases of abdominal disease by any method of external examination, if we leave out of consideration cases of ovarian cysts and uterine fibroids.

Therefore, I think that the author quoted is in error, and that his quoted statement should not be allowed to stand unchallenged.

In spite of the fact that great progress has been made in later years, there still remain a considerable number of cases of abdominal disease of a serious character, the nature of which equally skilful and intelligent surgeons will disagree upon. This statement applies to cases of obstruction of the bowels, to disease of the vermiform appendix, to affections of the liver and gall-bladder, and of the kidneys, and to pus collections in any part of the abdominal cavity.

The real facts in many cases of ruptured extra-uterine pregnancy are only clearly made out at a post-mortem examination.

Exploratory incision is looked upon by Mr. Smith as a serious operation followed by a trying illness.

In my hands it has not proven so; the serious part is the disease that warrants the operation, and not the operation itself, for with due care and cleanliness there is not one chance in a hundred that

any bad result will follow the opening of the peritoneal cavity for the purposes of diagnosis.

I would not have it understood that I am an advocate of careless or reckless work, but where the symptoms are grave and growing steadily worse and the life is at stake, if the symptoms point to some obscure disease of the abdominal cavity, there should certainly be no hesitation in clearing up all doubts by an exploratory incision if there be strength and vitality left to withstand the slight shock that attends the opening of the peritoneal cavity. During the past few years a number of cases have come under my observation that warrant me in these opinions, and I select from among them a few typical ones by way of illustration.

In November, 1888, I was asked to take charge of a lady from Austin, Nevada. She was twenty-seven years of age, mother of two children, youngest four years of age. She had suffered for many years a good deal of pain in region of ovaries and uterus, and when I first saw her she was confined to bed and had a temperature of 102°. The symptoms were those of a mild attack of pelvic peritonitis, but a careful bimanual examination showed the pelvic organs to be freely movable although tender to the touch. The uterus was retroverted.

Under the use of opiates, rest, and hot-water vaginal injections and the free use of quinine the symptoms mended, and at the end of a month the temperature was normal and she was allowed to get out of bed. The digestion was poor, and she complained of a feeling of distress in the region of the stomach and liver. At the end of ten days the fever returned with increased violence, and the repetition of the treatment gave only negative results. Manifestly I had to deal with some serious malady the nature of which could not be clearly made out. She was now much emaciated, and I advised an exploratory incision, giving as my reason that there was probably a small collection of pus in one or both Fallopian tubes. Prof. L. C. Lane saw the case in consultation, and agreed with me as to the propriety of the abdominal section, and the operation was done on January 31, 1889. Upon opening the abdomen the tubes were found to be normal. I then enlarged the incision and, introducing the whole hand, began a systematic examination of all the abdominal organs. Finally I discovered on the under side of the liver a hard, rounded tumor firmly fixed, about the size of a turkey's egg. While manipulating it between the thumb and finger I found movable masses within, and at once concluded that I had to deal with an enlarged and inflamed gall-bladder filled with gall-stones. I at once

sutured the retroverted uterus to the anterior abdominal wall and closed the incision in the abdomen. I then laid open the abdomen by a free incision near the lower border of the ribs, and with the finger-tips loosened the adhesions of the gall-bladder from the surrounding structures, and drew it up and stitched it to the edge of the abdominal wound, laid it open and removed a small handful of biliary calculi, leaving in the viscus a small drainage-tube for one week. The improvement was remarkable; the fever and pain immediately left her, and in six weeks she had regained her normal weight. A small biliary fistula remained for three months, which healed at once upon removal of another gall-stone which had been left in the bladder at the time of the operation or had worked its way down from the ducts subsequently. The gall-bladder contained also purulent matter, and this, together with the local peritonitis, was doubtless the cause of the fever. The only symptom that would lead to the suspicion that such disease existed was the indigestion and the sense of uneasiness and pain in the region, but this was no greater than is often seen in those who have suffered from habitual dyspepsia. The external examination gave no clue, for the gall-bladder was firmly fixed high up under the border of the liver. One year after the operation the uterus retained its normal position, and she remained in good health.

Mrs. W. F., aged twenty-four years, one child and one abortion, came to San Francisco from Honolulu in the summer of 1891, and for three months was under the care of two competent medical gentlemen, who treated her for some obscure and painful affection of the pelvic organs. But little good attended their efforts, and I was asked to take charge of the case. Upon examination, the abdomen was found to be distended with gas and very tender on pressure. The uterus was moderately fixed, retroverted and sensitive to the touch, cervix slightly lacerated, bladder irritable, and urination painful. Temperature 105°. A purge of 10 grains of calomel was given, which acted freely but without relief to symptoms. Manifestly there was some serious trouble in the abdominal cavity, probably a pyosalpinx, and an exploratory incision was advised, and after setting forth the facts in the case the plan was agreed to, and the patient was removed to my private hospital and the abdomen opened. It was then found that the patient was suffering from general peritonitis. The vermiform appendix was enlarged, contained several small particles of hard fecal matter the size of small peas, and two openings or ulcerations existed extending from the cavity of the appendix into the peritoneal cavity. The appendix was slightly adherent to the adjacent structures by bands of lymph. The right Fallopian tube contained two ounces of pus. The appendix and Fallopian tube were

ligated and removed, the abdomen washed out with hot water, and a drainage-tube left in for forty-eight hours. Recovery was uninterrupted, and she returned to her home on the twenty-first day following the operation. In this case there was no suspicion of disease of the appendix before the exploration, and had the operation been delayed she would doubtless have died promptly, whereas from the moment of opening the abdomen I was master of the situation, and recovery was at once almost a certainty.

On November 16, 1891, I saw, in consultation with Dr. B. F. Clark, a woman, twenty-one years of age, one child and one miscarriage, who was suffering from some obscure and painful disease of the abdominal cavity following an attack of pelvic peritonitis. From the history, symptoms, and examination it was concluded that it was a case of pelvic abscess—such a case as, in former years, I would have punctured through the roof of the vagina, but it was decided to make an exploratory incision and clear up all uncertainties. On the following day the plan was carried out, and in addition to a double pyosalpinx we found near the umbilicus a mass the size of the closed fist, consisting of omentum and small intestines firmly agglutinated together. I began cautiously to break up the adhesions and dissect the various layers apart with my finger-nails, and in the centre of the mass I came upon an abscess containing two ounces of ill-smelling pus, the walls of which were gangrenous in appearance. The tube and ovaries were removed and the parts thoroughly washed, a drainage-tube inserted for three days, after which recovery was uninterrupted.

In this case any procedure short of abdominal surgery would have been of little use.

On June 15, 1892, I was asked by Dr. Myers, of Union Street, to see a case with him. She was twenty-seven years of age, had been married ten months and eight days before I saw her, had suffered a miscarriage of six weeks' pregnancy. Following the abortion, fever developed, and when I saw her her temperature was 104½°. She was bathed in perspiration, the abdomen greatly distended, and the suffering intense. The expression of the face was the peculiar pinched, anxious look so familiar to those who have much to do with cases of abdominal surgery. Upon examination it was found that a large solid tumor the size of a child's head occupied the pelvic cavity. An offensive discharge was escaping from the os uteri, and the uterine cavity measured six inches. An important question at once presented itself: Was the woman suffering from septicemia due to absorption from a decomposing placenta, or had she already a general peritonitis from extension of

the disease along the Fallopian tube into the peritoneal cavity? If the former, the curetting of the uterine cavity might prove of service; if the latter, it would do no good. An exploratory incision was decided upon, and the following day I opened the abdomen and at once found purulent general peritonitis and a large, sloughy-looking uterine fibroid. During the examination pus was seen flowing freely into the peritoneal cavity from the free opening of the Fallopian tube. I at once tied off the broad ligaments, ligated the uterine arteries, removed the tumor, tubes, and ovaries, leaving the stump of the cervix closed in by flaps and a whip-stitch of catgut after the method of Schroeder. The abdominal cavity was washed and drained, the temperature at once went down to 100°, and there was but little shock.

The recovery was uneventful, except that the abdominal wound did not unite, owing to the infection during the operation by the purulent discharge, and that in order to secure more perfect drainage on the fifth day I passed a rubber tube from the abdominal wound through the stump of the cervix into and out of the vagina. The patient was out of bed in five weeks, and walking about a week later, having gained very materially in weight during her confinement to bed.

With these facts before us, can there be any question in the mind of any intelligent surgeon of the proper course to pursue? Certainly courage and prompt action are necessary if good results are to follow.

On July 26, 1892, an Italian woman, aged twenty years, was brought to my private hospital in a greatly emaciated condition; her temperature was 102° and pulse 130. She had borne one child two years before. Eight months before I saw her she had an attack which, from the history, I should judge was pelvic peritonitis, since which time there had been steadily failing health and progressive emaciation, accompanied with much abdominal pain, fever, and profuse perspiration. She had been having for several weeks a discharge of pus daily from the rectum. A bimanual examination showed the pelvic organs firmly fixed and tender, the abdomen not distended, and no marked thickening at any point that would indicate a circumscribed pus collection.

With the assistance of Dr. B. F. Clark, the abdomen was opened on the following day, and we found the peritoneum enormously thickened. The moment the cavity was opened a gush of pus occurred, and this was followed by the discharge of fully three quarts of yellow and grumous pus of very fetid odor. The sac was now washed out with

several gallons of hot water and the whole surface mopped over with a mixture of equal parts of compound tincture of iodine and carbolic acid.

An examination showed that the pus cavity extended from the Douglas pouch to the ensiform cartilage. No pelvic or abdominal organs were anywhere in sight, all being buried in lymph and pushed in every direction by the encroaching pus-sac. Two drainage-tubes were fastened in, and every twenty-four hours the cavity was thoroughly washed out with half an ounce of compound tincture of iodine to a gallon of hot water. Rectal injections of whiskey and milk, and five grains of quinine every five hours administered by the mouth, produced a marked effect. At this writing convalescence is fully established, with every prospect of return to health.

Had tentative measures been employed here, or some imperfect system of drainage, I believe the result would have been disastrous. There was no way of learning, from the external examination, the great extent of the disease, and the wonder is that any poor human being could live and carry about such a dreadful load of filth.

It might be said that the cases reported are exceptional. In answer, I would say that similar cases are coming under my observation constantly, and every year add strength to the conviction that in properly selected cases exploratory incision of the peritoneal cavity is one of the most valuable additions to surgery that has been made in later years, and that when a patient dies after an abdominal section the fault lies with the disorder that warranted it, and not with the operation—provided, of course, that the surgical work has been done properly and with the strict observation of cleanliness.

VENTRAL HERNIA FOLLOWING LAPARATOMY.

By L. H. DUNNING, M.D.,
INDIANAPOLIS.

Ventral hernia as a sequela of laparatomy frequently occurs. In many cases it gives rise to much suffering, and in not a few instances, in consequence of it, the life of the patient is endangered.

The reasons of the failure to obtain perfect and permanent union of the divided structures are variously stated by authors. The retraction of the aponeurosis of the oblique and transversalis muscles, so that it is not included in the deep sutures or its edges are imperfectly coaptated, the too close or too loose contact of the divided surfaces, and the imperfect coaptation of like structures—all this relates to faulty suturing of the wound.

To the use of the drainage-tube have been attributed many cases of ventral hernia, and not a few cases appear where the iodoform-gauze packing has been employed.

Martin states[1]: "Not the method of suture, but the state of nutrition, the occupation, and the tone of the tissues of the patient, determine the occurrence of hernia."

I have had one striking illustration of the effects of a depraved condition of the system and a lack of tonicity of the tissues resulting in the formation of a ventral hernia. A large hernia was cured after two operations, and in a few weeks another hernial mass found its way out of a stitch-hole opening. Further examination showed that there were three other thin spots in the abdominal walls at the site of the deep stitches, and it seems to me that in the course of time other hernial masses will find their way out of these openings. Heavy lifting, heavy work, falls, or violent coughing after the operation certainly predispose to the formation of these herniæ. In

[1] Edebohls: Journ. Amer. Med. Assoc., May, 1891, p. 547.

one case I have seen, a fall upon an icy pavement directly caused a hernial protrusion.

Out of something over seventy of my cases of laparatomy, I have found four cases of ventral hernia. In three of these the drainage-tube was used, and in one of them no hernia appeared for over one year, when the abdominal bandage was discarded. A few days later the patient had a violent attack of sneezing, which induced pain at the lower extremity of the scar. Upon examination a small protrusion was discovered. This has gradually increased, so that now, at the end of four weeks, it is nearly as large as an ordinary hen's egg. In a second case in which the drainage-tube was used, the woman went on thirteen months after the section without anything abnormal appearing in the cicatrix. She continued to wear the abdominal supporter. One day, later, she accidentally discovered an enlargement at two points along the line of the scar. The scar was long, extending nearly to the ensiform cartilage above and to the pubes below. There were two herniæ, one near the upper extremity of the scar and the other just below the umbilicus, the lower finding its way out of a transverse cicatrix the site of a transverse incision through the rectus muscle and fascia, made in order to yield a better view of the pelvic tissues during the operation. In this case the use of the drainage-tube had nothing to do with the causation of the hernia, as it did not appear at the point at which the tube was inserted. The wound was closed by two rows of sutures—viz., a deep one including all the layers of the abdominal walls, and one of catgut uniting the edges of the peritoneum. The third case of hernia in which a drainage-tube was used was a woman from whom pus tubes were removed. We had an alarming hemorrhage to control, in which gauze packing was employed. A glass drainage-tube was also employed. Eight weeks after the section a moderate-sized hernial protrusion was found at the place of exit of the gauze tampon and drainage-tube. This patient suffered greatly in consequence of the rupture, so, four weeks later, it was operated upon and a cure effected.

One other case of ventral hernia has occurred in my practice. In it no drainage-tube was used. The incision was short and closed by a single row of through-and-through stitches. The patient was a domestic. She made an excellent recovery from the operation and went to work in eight weeks. Contrary to instructions, she left off

the bandage. A hernia appeared at the lower extremity of the scar. It incapacitated the patient from work and was operated upon, a cure being effected.

Two other cases of ventral hernia have fallen under my observation, one in which the rupture resulted from a fall more than a year after the operation. No drainage-tube was used. The stitches were a single row through and through. The other case was a syphilitic upon whom two laparatomies had been performed. After the second laparatomy she got up in three weeks without a bandage. A few weeks later the hernia appeared and she came under my observation at the city hospital. There was separation of the recti muscles throughout the entire length of the scar. It required two operations to cure this hernia. Another one appeared a few weeks later at the side of the scar through a stitch-hole cicatrix. This is the case referred to above in which the hernia was stated as due to a depraved condition of the system and a lack of tonicity of the tissues. In three of these cases the patients were fat and the incisions were long.

An experience in six cases is not sufficient to draw any very definite conclusions, yet this experience tends to confirm what has already been stated above as to the causes of ventral hernia.

The discomfort produced by these herniæ varies greatly. Some patients suffer little when a well-fitting bandage is constantly worn during the day, others can find no relief by any mechanical means. Pain is most frequently complained of; it is described as a sickening, dragging pain, and sometimes as being colicky before the bowels act. There are usually gastric disturbances and constipation. Not infrequently, too, there are vesical irritation and nervous disorders. The dangers are that strangulation will occur when the opening is small, or rupture of the coverings when the tumor is large and not well supported. The diagnosis of ventral hernia following laparatomy is easy. We need not discuss it at length. There will be a protrusion on standing that disappears more or less completely on lying down. This protrusion will be somewhere along the line of the scar. The hernial mass may be forced out even when the patient is lying upon the back. Upon coughing, it quickly recedes and an opening is found beneath the skin through which the hernial mass has appeared and disappeared. The opening may be large or small and one of a variety of shapes. If

small, it is likely to be oval; if large, oblong or irregular in shape. There is sometimes difficulty in completely reducing the hernia, if a very considerable portion of the upper part of the mass is omental and adherent to the under surface of the abdominal parietes up to the edge of the ring and extending beyond to the sac and there adherent. Usually, however, the edge of the ring can be made out and the true condition determined.

Strangulation here presents no features materially different from those present in other forms of hernia.

Edebohls[1] cites two cases and records another of spontaneous rupture of ventral hernia. I have met with one case in which the coverings of the hernia were so thin and, when the patient was upon her feet, so tense that it seemed to me rupture was imminent.

The schematic figures in the books showing the coverings of the hernia are not in all respects exact. For instance, the sac of the hernia is figured as the peritoneum. There is frequently, I believe, a non-union of the edges of the peritoneum as well as of the deep fascia after the section, especially if the gauze packing or a drainage-tube has been used; so that when the opening is formed and the gut or omentum protrudes, there remain only the skin, subcutaneous cellulo-adipose tissue, and a thin layer of newly-formed tissue similar to that composing the bands or ribbons of adhesions in inflammatory conditions of the pelvic and abdominal contents. Such was the condition the writer found in one case. Here, when the sac was opened and examined, it was found the edges of the peritoneum were very nearly as widely separated as were the recti muscles. The sac was very thin and had all the naked-eye appearances of newly formed tissue. This was the case in which the operation for cure of the ventral hernia was done three months after the performance of the section, so that it afforded good opportunities to study early conditions. Unquestionably the color, texture, and general appearances of such a structure would change in time, so that probably it would, without microscopical examination, be mistaken for peritoneum.

It seems to me a knowledge of the fact that the cut edges of the peritoneum are sometimes (I believe frequently) widely separated, being pushed apart by the protruding mass, should influence us in

[1] Ibid., p. 548.

adopting a method of operation for the radical cure of the hernia. The part played by the peritoneum in strengthening the anterior abdominal wall is probably slight, yet it is something and should be utilized. Furthermore, there should be a continuous peritoneal surface in front when there is so much friction and pressure.

Suppose now we should adopt the method so ably advocated by Edebohls[1]—viz., separate the cutaneous layer from the peritoneal covering of the sac, this separation to be complete and carried well to the margin of the ring. Now invert the sac (peritoneal) and draw together with stitches the edges of the recti muscles over it. Of course, the sac is interposed between the edges of the peritoneum, and there can be no union of their borders. On the other hand, suppose we open the sac and find the border of the incised peritoneum upon either side—*i. e.*, provided they are separated. Let them be drawn together and united by a separate row of sutures; then, if the union takes place, we will reach much better results than in the former case.

I am not sure that this is an important point, yet think it worthy of further investigation. The important question connected with the subject is, How can we prevent the formation of ventral hernia?

One's beliefs relating to the cause of the occurrence will greatly influence his treatment of the patient after abdominal section. If he believes, with Thomas, that the occurrence of hernia is not the result of bad management, he will not, I fear, be inclined to be so careful in closing the abdominal wound, and in the after-treatment. It seems to me, however, Wylie[2] goes too far when he says: "As a rule, when hernia after laparatomy does occur it is due to the fault of the operator rather than to want of care on the patient's part after she is allowed to get up."

Between these two extreme views lies the truth. The ideal method of closing the abdominal incision is to bring tissues of like structure into contact—that is to say, peritoneum with peritoneum, aponeurosis with aponeurosis, muscle with muscle etc. It is frequently impossible to do this with a single row of stitches if the abdominal walls are thick and tense or if they are very much relaxed. In such cases the preferable method is to unite the different layers by separate sets of sutures. Here, again, we may

[1] Ibid.

[2] American Journal of Obstetrics, vol. xx. p. 26.

encounter obstacles to perfect and strong union of all the structures, for the catgut or kangaroo-tendon sutures we use will sometimes induce suppuration, giving rise to an abscess, and thus lead to a weakening of the abdominal walls. I have had but one such unfortunate occurrence since I began using the kangaroo-tendon suture. It is essential that the edges of the deep fascia and the aponeurosis of the transversalis and oblique muscles should be accurately coaptated. This can be better done by sutures than otherwise. The Lembert-stitch method of Wylie seems to me to be entirely unnecessary. Eastman has described to me a method, devised by him, of holding the border of the linea alba slightly overlapped, seam downward, in close contact. Before placing any sutures he has an assistant pick up the cut edges of the linea alba and draw them well out of their hiding-place. The deep sutures are then placed, and just before they are tied the borders of the aponeurosis of the recti muscles are drawn together, and the running stitch of a single thread of silkworm-gut is then passed, first in one edge and then in the other. By an overcasting stitch the margins are brought together from the lower to the upper angle of the incision. This thread is tightened by drawing first on one end and then on the other. When the incision is finally closed one end of the silkworm-gut will protrude from either extremity of the incision. This thread is not removed until the end of two or three weeks. The author rejects catgut, and aims by the means described to keep the borders of the fascia firmly together until firm union of this non-elastic covering of the abdomen has taken place, and says that since he adopted this method he has not as yet found any cases of hernia.

Wylie has very forcibly pointed out the danger of allowing the bowels to become constipated during the first few days after the section, and of the proneness of violent coughing to cause separation of the coaptated edges of the incision.

From the combined effects of these two, one of the writer's patients had the misfortune to completely tear open the abdominal incision one week after the removal of the stitches—when, too, it had been thought there was union by first intention.

It has come to be the custom of the writer to induce a movement of the bowels the third day and every second day thereafter. His patients do better under this plan. Sometimes calomel and salines

are given at first, and at other times enemata are quite sufficient. When efficient they are preferred. A properly fitting abdominal bandage is unquestionably of value in supporting the abdomen and preventing the stretching or separation of the newly formed tissues along the line of the incision. It has been demonstrated over and over again that an umbilical hernia in an infant may be cured by the use of a truss or a bandage supporting and holding in place over the hernial opening an unyielding compress.

If there should be imperfections in the union after abdominal section it is reasonable to think that the bandage will be of as great service as it is in umbilical hernia in the infant. It should be worn constantly during the day for at least one year after the section. A few weeks after the laparatomy it may be left off while the patient is in bed, unless there should be special indications for its use, such as coughing or vomiting. In some cases of hernia the bandage serves a very good purpose in preventing an extensive protrusion of the hernial mass. A neatly fitting abdominal bandage, with a moderately thick piece of pasteboard covered with chamois skin and fastened to the under surface of the abdominal bandage, placed so as to rest, when applied, over the hernial opening, has afforded a comfortable support to the hernia in two of my patients.

My patients have not well tolerated the umbilical trusses. These have been invariably laid aside after a time, the abdominal bandage being substituted.

Notwithstanding our utmost endeavor to make our patients comfortable, there will be many whom the hernia renders incapable of work or in whom it causes constant suffering. In such cases an operation for the radical cure of hernia is indicated. I believe the method selected should depend somewhat upon the conditions found; as, for instance, if the hernial opening is small, the protruding mass also small, the edges of the opening distinct, and the peritoneum forming the hernial sac, and the mass, can be completely returned to the abdomen, we may freshen the edges of the ring, and, after pushing the sac into the abdominal cavity, bring the separated structures together and secure them by separate rows of buried stitches. If the structures about the ring have so blended together in consequence of inflammatory processes that they cannot be recognized, they may be split with knife or scissors, and separate rows of stiches be introduced. By this means the writer's first

case was cured, and now, at the end of nearly two years, there has been no recurrence of the hernia.

In the next case he operated upon, the hernia was large and the opening in the abdominal walls beneath the skin was also large and irregular in shape. He was unable to entirely reduce the hernia. About two-thirds of the hernial mass could be returned, the other one-third remained protruding through the upper portion of the hernial opening. Obviously the method just described would not be applicable here. The sac was opened and the adherent mass found to be omental. It was adherent to the parietal portion of the peritoneum along the line of the incision and upon either side for a distance of at least one inch. It extended through the opening and was adherent to the hernial sac. These adhesions were severed, but so much bleeding resulted that the mass was ligated in sections and cut off. Two or three portions of intestine were also adherent to the sac, but could be pushed back into the abdomen. The intestinal adhesions were so firm that portions of the sac were cut out and left adherent to the intestines. Finally the sac was entirely freed, but was found to have several holes in it, made by liberating the intestines and omentum. The redundant portion was cut off and the edges brought together with a continuous catgut suture. The abrupt resisting borders of the hernial opening were freshened and brought together by a row of interrupted catgut sutures, and finally the skin, which had been trimmed so that the edges nicely met, was brought together and held in close apposition by interrupted silkworm-gut sutures.

The patient was kept in bed four weeks, wearing an abdominal bandage constantly. The hernia seemed cured when she arose from the bed. A few weeks later a small hernial protrusion was found at the lower portion of the site of the former hernia. We attempted the use of the abdominal truss, but it gave pain and was abandoned. The hernia gradually increased in size until it became as large as when operated upon. The patient suffered constantly; she vomited frequently and was habitually constipated. Three months after the first attempt to cure the hernia another operation was done for the same purpose. This time the external covering of the hernia—viz., the scar and integument—was very thin. Beneath this was a very thin layer of fat, and then came the sac, a thin but distinct membrane appearing like new tissue; to it several

loops of intestines were adherent. The same general plan was adopted as in the former operation. Kangaroo tendon was used for the buried stitches, and deep through-and-through stitches of silkworm-gut were used in addition to the two rows of buried sutures and the row for the skin.

The deep stitches were allowed to remain in eighteen days. The wound healed perfectly without any pus. This time our efforts were successful, but a small hernia appeared through a weak point in the abdominal walls at the site of one of the deep stitches passed in the original abdominal section.

In the third case the same general plan of operation was adopted. The sac was united by the cobbler's stitch. The hernia was cured. As in the former case, kangaroo tendon was employed for the buried stitches.

The introduction of this suture by Marcy has been of signal benefit. The highest degree of success cannot be attained in the operation for the radical cure of ventral hernia without making use of buried stitches. It cannot be denied that catgut is frequently disappointing. Kangaroo tendon has failed me but a single time, and then suppuration occurred. It has served me so much better than catgut I shall not again willingly use the latter suturing material.

Edebohls, in the excellent article from which I have quoted frequently in this paper, urges the advantage of avoiding the opening of the peritoneum for the radical cure of this form of hernia. Unquestionably in some instances his method will be found efficient; yet it has not been demonstrated to be less dangerous than the method of opening the sac, and, furthermore, it does not permit of the liberation of the loops of intestines, in which case herniæ are so often adherent to the sac, and which may be a cause of pain or obstruction of the bowels. Further experience is needed to demonstrate which is the superior method.

The ideal method must have for its end the restoration of the structures involved to their normal relations. This ideal cannot be fully realized, yet the nearer we approach it the more enduring and satisfactory will be the beneficial results of our efforts.

To this end we should endeavor to restore the continuity of the peritoneum and to unite similar structures. This can best be done by incising all the coverings of the hernia. We have already

shown that the edges of the peritoneum are not infrequently ununited and widely separated. Here the sac, composed of newly formed tissue, may be entirely removed down to the margin of the peritoneum, the edges of which should be freshened and brought together and the remaining structures sutured after the plan already described.

Conclusions.—These are as follows:

1. Ventral hernia as a sequela of laparatomy is of frequent occurrence.

2. The pain and other disturbances it induces vary greatly in different cases.

3. The causes of the morbid condition are depraved condition of the system; lack of tonicity of the tissues; imperfect coaptation of the divided structures; failure to bring like tissues together; a partial separation of the agglutinated edges of the incision by coughing, vomiting, or straining at stool, and weakening of the line of union by abscesses of the abdominal walls; too early getting up after laparatomy; heavy lifting, slips, falls, or habitual cough. These all may either directly or indirectly induce the hernia.

4. Preventive means are suggested by studying the foregoing conclusions.

5. A properly fitting bandage is of service in preventing a separation of the united tissues, and will often prevent an increase in the size of the hernial mass.

6. The method of treament adopted must depend upon the severity of the symptoms induced by the hernia, and the efficiency of a truss or abdominal supporter to prevent the hernial mass from protruding through the opening.

7. A well-adjusted elastic abdominal supporter, with an underlying compress of pasteboard or other flexible, yet resistant material, has afforded my patients greater relief than the trusses for abdominal hernia.

8. When the truss or abdominal supporter fails to afford relief and the pain and suffering are great, or the patient, in consequence of the hernia, is incapacitated for the performance of her usual work, an operation for the radical cure of hernia is indicated.

9. The plan of operation may vary somewhat. Small herniæ that can be perfectly reduced, and large herniæ that have no

adherent omentum or loops of intestine and which can be perfectly reduced, may be cured by dividing the hernial covering down to the sac, inverting it, and uniting, by rows of buried sutures, the structures over it, after the method of Edebohls. In all cases when the sac is composed of new tissue, the edges of the peritoneum being widely separated, or in those cases in which the omentum or intestines are adherent to the sac, and in all cases in which the hernial mass cannot be completely returned to the abdominal cavity, the sac should be opened, the adherent omentum and intestines separated, and sufficient of the sac cut away to allow the edges to be united without tension. Buried stitches of kangaroo tendon should then be employed to unite the edges of similar structures—viz., peritoneum to peritoneum, fascia to fascia, etc.

10. Deep stitches of silkworm-gut or silver wire, including all the layers of the abdominal walls and left in twelve to fourteen days when the walls are tense, will yield the best results.

THE TREATMENT OF ABORTION.

By JOHN MILTON DUFF, M.D.,
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The treatment of abortion is necessarily divided into four classes: 1. Prophylactic; 2. Of threatened abortion; 3. Of inevitable abortion; 4. Of neglected abortion, and, I might add, 5. The immediate sequela of abortion.

To appreciate the necessity for the proper treatment of abortions we have only to consider how prolific they are as a source of disease of the uterus and its appendages, and the fact that they very frequently lay the ground-work for constitutional disease and entail a whole retinue of disasters well known to the experienced practitioner. It is lamentable to know that so little is thought of a "*miss*" among the laity, and that in so many instances not the least professional care is given to the victim of this misfortune. In fact I have often felt like criticising members of our profession when I have heard them speak so lightly of abortions and their consequences.

I regard the treatment of abortion as one of the most difficult the obstetrician is called upon to attempt. Certainly no other class of cases calls for the exercise of broader judgment or the application of more tact and skill. The most experienced practitioners are often sorely perplexed and scarce know what course of treatment to pursue.

Abortion in its broad sense is the premature expulsion of the contents of the pregnant uterus.

For practical purposes it is subdivided into: 1st, abortion *vera*, when it occurs during the first three months; we have in this period a still further subdivision of ovular and of embryonic abortion. 2d, miscarriage, when it occurs after the end of the third month and prior to the first of the seventh month. 3d, premature birth, after the beginning of the seventh month and prior to term.

A mental view of these divisions and the varying conditions of the uterus and embryo in each of them should be kept continually before the mind's eye of the practitioner. His judgment will thus be materially aided and great assistance afforded in his manipulations.

The prophylactic treatment of abortions embraces all those means which will place the system of the patient in a healthy condition, and the avoidance of all accidents and conditions which would have a baneful influence upon the embryo. This presents for our consideration a very wide field, one to which we can, in this paper, do little more than refer. Among the principal causes which are amenable to treatment are syphilis, anemia, plethora, diseases of the endometrium and displacements of the uterus.

The hygienic surroundings should receive special care, and the patient should be commanded to be faithful in regulating her habits of life to conform to the exigencies of the case.

It is strange, yet it is a fact, that moral treatment and Christian training are a necessary preventive against abortion in this enlightened nineteenth century. It is nevertheless a fact that a very large percentage of the abortions we are called upon to treat are induced either by the professional abortionist or by the victim herself. I have no hesitancy in saying, what my observation abundantly justifies, that there is an alarming increase in the number of induced abortions among all classes of society. While very much of this work is done deliberately without any fear of God or man, and without any thought or care for the physical and moral degradation which is bound to ensue, I believe by far the greater portion of those guilty of this offence are, to a very great extent, ignorant of the disastrous consequences which such a course is certain to entail.

I believe that the means used for the prevention of conception and for the induction of abortion constitute one of the most crying evils of our day.

When I say that not only the young maiden, who for love has forfeited her virginity, or the author of her shame, seeks for the assistance of the physician to drive away the cloud which has overtaken them, but also the proud, the beautiful, the good mothers of our land, who, under one pretext or another, beg, entreat for the wand which will relieve them of the embryo in their womb, and

that the fathers, business men, professional men, men of all classes are equally assiduous in soliciting remedies for the purpose of abortion, I am simply saying what is well known to every practising physician of experience throughout the length and breadth of this land.

It is our duty, as members of a grand and noble profession, to do our full duty, and, being cognizant of these truths, to take advantage of every opportunity to aid in dethroning this monstrous enemy of society and of the human race.

The habitual abortion mentioned by most writers, while it is true, cannot always be accounted for on pathological grounds. As a rule, however, a thorough analysis of the case will develop some disease of the uterus or of the adnexa.

All pregnant women should be specially warned against frequent *coitus*, lifting heavy weights, running, jumping, or violent exercise of any kind whatever. "The patient should always be told, moreover, that if she becomes conscious at any time of pain in the back, she must at once lie down, and remain quiet till at least an hour after the pain has disappeared, and this no matter how slight the ache may have been." (Reynolds.)

I am not a believer in any specific preventive remedy against abortions. I consider all such nostrums as unreliable, their administration as unscientific, and the words of praise accorded to them in the advertisements as not only calculated to raise false hopes, but also unworthy of a place in medical literature. Of course, a remedy which will favorably influence any single pathological condition is legitimate. The nearest we come to a specific treatment (prophylactic) for abortions, is mercurials, tonics, bromides, opium, and rest. I want to state here my candid conviction from a somewhat extensive observation, that the administration of anti-syphilitic remedies to the father will have but little, if any, effect upon the occurrence of an abortion. The mother must be the victim of syphilis herself, and the treatment must be directed to her. In cases of anemia the muriate tinct. ferri chloridi and potassa chlorate I have found to be among the most reliable remedies. With the much-vaunted viburnum prunifolium I believe I have occasionally had good effects; but I am compelled to say that I have not had the happy results from its use that many gentlemen in the profession claim to have had.

The treatment of threatened abortion must first be for the purpose of arresting it, and here we must be very careful to not relax our efforts until we have positive evidence of inevitable abortion. In confirmation of this I have my own experience in many cases, where my judgment told me it was scarcely worth the time trying to avoid what appeared to be certain disaster, yet by patient and persistent effort all symptoms ceased and the women went on to term. I was taught in my student days never to introduce a tampon until it was emphatically demanded by the severity of the hemorrhage, as upon the introduction of the tampon all hope of the prevention of the abortion must cease. Time after time have I had the fallaciousness of such teaching verified in my practice. As an example, I may instance the case of a wife of a medical gentleman in this city. In her third pregnancy it became necessary on four different occasions during the first three months, on account of exaggerated uterine hemorrhage, to apply the tampon. The hemorrhage finally ceased, and she went on to term and gave birth to a well-developed male child, who now, a bright boy of ten years, is the joy of his parents. I do not wish to be understood as saying that a tampon may not aid in precipitating an abortion, but that it will not necessarily do so, and that it should be judiciously used to prevent exhaustion from hemorrhage, even when the abortion is not inevitable.

The principal treatment of a threatened abortion may be summed up in "opium and rest." "Opium" to the extent of slight narcosis, and "rest," absolute rest in bed until all symptoms of a threatening character have passed away. If the os is patulous small doses—gtt. x—of fluid extract of ergot every three or four hours is often very efficacious. The well-known primary effect of ergot upon the circular fibres of the os and cervix is to tone them and lessen the lumen. The treatment of inevitable abortion (I now refer to abortion *vera*, for the treatment of miscarriage and of premature birth are to all intents and purposes the same as the treatment at term, except a few minor details which we may allude to further on) presupposes the abandonment at once of all preventive measures and the adoption of such methods and means as will the most speedily secure the expulsion of the uterine contents without unnecessarily jeopardizing the interests of the mother.

We have now two principal dangers confronting us, exhaustion

from hemorrhage and septicemia. Likewise we have two plans of treatment from which to select: the expectant and the active.

In the expectant plan of treatment we adopt such measures as will bring about expulsion by the natural means. Our principal reliance is the vaginal tampon—aseptically applied—to prevent hemorrhage, and by its presence to produce tenesmus and induce uterine contraction. Some authorities advise the use of ergot. I only mention it to condemn it as a remedy under these circumstances. I have great confidence in ergot as a remedial agent, and believe it has a high and legitimate place in obstetric practice, but that place is not in the treatment of inevitable abortion. I have seen it do vastly more harm in these cases than I have ever seen it do good. As a rule, it at least retards the expulsion of the uterine contents if it does not lock them up and materially interfere with any manual effort which may subsequently be necessary for the removal of the retained ovum.

The active treatment consists in the adoption of operative means to withdraw the contents of the uterus. This is effected by the use of the finger, polypus forceps, placental forceps, or a curette, and sometimes the use of tents or a steel dilator is necessary to dilate the cervix. This implies the immediate clearing out from the uterus of all of the accumulations of pregnancy.

Both of these plans of treatment have earnest advocates in this country and in Europe. No one pretends to always rely on the expectant plan, but some discard it altogether, and universally practise the active plan.

I have no hesitancy in asserting that the expectant plan is the most judicious in, perhaps, the majority of the cases of abortion we are called upon to attend; but to say that it is universally applicable is very far from the truth. The conditions of the case, its environment and complications, and by no means least of all, the experience, tact, skill, and judgment of the accoucheur must be taken into consideration in determining the plan of treatment to be adopted. There is no reflection intended upon the general intelligence and skill of the profession when I say they are not all as expert in the use of the uterine curette as the gentlemen who compose this honorable body of specialists, and I regard the curette as a dangerous instrument in the hands of a novice.

My own practice is always, everything else being equal, to adopt the expectant plan of treatment when the ovum is still intact and

there is no evidence of septicemia. Under any circumstances, whether or not the embryo is intact and there is no evidence of septicemia, with a rigid unyielding os, I would advise first a trial of the expectant plan, especially to all who are not adepts in the use of the curette and dilator.

Hemorrhage is more assuredly, immediately, and permanently controlled by the complete evacuation of the uterus, which should be done, if it can be done readily, with the finger. The tampon, if properly applied, will control the hemorrhage. In a somewhat extensive practice of twenty years I have never been unable to check the hemorrhage of abortion with the tampon.

I do not think we are ever justified in adopting the expectant plan of treatment when septicemia is already a factor in the case. Here the active treatment should be adopted in the most active manner consonant with safety. If the case be in the hand of one who does not not feel himself equal to the task he should at once call assistance, and expert assistance, if possible.

There are many methods of performing the active treatment. It should always be done with the strictest aseptic precautions. If the finger can by any means be introduced into the uterus it is by all odds the best instrument to use. As previously mentioned, the polypus forceps are sometimes a very efficient remedy.

For the use of the curette I place the woman across the bed in the lithotomy position. With a pair of Batty's retractors in the vagina, held by assistants, and pressure over the uterus by the hand of an assistant, I have no difficulty in curetting, holding the uterus firm with a pair of bullet forceps. After curetting thoroughly and evacuating the uterus, I wash out the latter with a 1 : 60 solution of creolin. Where the temperature is high this treatment may be supplemented by the introduction into the uterus on cotton wrapped on a sponge-holder a 75 per cent. solution of carbolic acid. This latter treatment I have only instituted four times in all, but its effect was in each case highly gratifying.

The treatment of neglected abortion is certainly the active treatment just mentioned.

As I have already drawn this paper out to a greater length than I intended, I will close by saying that the practitioner has not performed his whole duty when he has evacuated the uterus. Involution must be aided, lacerations repaired, malpositions rectified, and inflammations of the endometrium cured.

PELVIC CELLULITIS IN ITS RELATION TO SURGERY.

By MARCUS ROSENWASSER, M.D.,
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Owing to the peculiarity of its location and the rare occasions offered to study the pathology of the pelvic organs, pelvic cellulitis has until recently been the source of endless confusion and acrimonious debate. It has been dignified on the one hand to the position of "twin sister"[1] of pelvic peritonitis, to be degraded on the other as a non-entity, a myth.[2] While such extreme views have found expression within the past year, it would be exceedingly unfair to these eminent exponents of gynecology to interpret either literally. Thomas has held advanced views for many years, but seems to be unable to disassociate himself from his early training. Price is justly indignant at the tenacity of those who have eyes and will not see, ears and will not hear.

As elsewhere in the body, the connective tissue in the pelvis serves as binding and packing material in the pelvic floor and walls, and as wrapper for the ureters, nerves, bloodvessels, lymphatics, and glands in their passage through the same.

Pelvic cellulitis is an inflammation of the connective tissue within the pelvic floor or diaphragm, more especially between and beneath its serous folds, and around the supra-vaginal portion of the cervix. This in distinction from *pelvic peritonitis,* which is an inflammation of the serous covering of the pelvic viscera and walls. According to Thomas and others, "these two affections may be compared to serous and parenchymatous inflammation of the lungs —pleurisy and pneumonia." Anatomically this analogy is not

[1] Thomas and Mundé, edit. 1891, page 474.

[2] "I have no knowledge of pelvic abscess except as tubal and ovarian disease primarily and secondarily."—Joseph Price. Trans. Amer. Assoc. Obst. and Gyn., vol. iv. page 239.

sustained. While pleurisy may be likened to peritonitis, both being diseased serous membranes, pneumonia, being a diseased organ, can be paired only with an organ, such as the uterus, ovary, or tube. The diseased pelvic diaphragm can be logically compared only to diseased thoracic diaphragm, the conditions varying according to respective location and function.

Thomas[1] suggests the name "para-uterine" instead of "pelvic" cellulitis. He says: "It is certainly not conducive to clearness of comprehension to blend the description of iliac, psoas, and peri-rectal abscess with this disease." Precision in pathology is not aided by exchanging one vague term for another. Our aim should be to locate accurately diseased organ or tissue. The terms endometritis, metritis, ovaritis, salpingitis convey to our minds a more clear conception than the term "perimetritis." I would call inflammation about the supra-vaginal portion *supra-vaginal* cellulitis or abscess; inflammation of the upper outer portion of the broad ligament *sub-tubal* or *infundibulo-pelvic* cellulitis or abscess. I would retain the general term pelvic inflammation for those cases in which specific localization is impossible.

Excepting cases ending in diffuse suppuration, pelvic cellulitis generally terminates in a complete restoration to health."[2] "Its course is to be likened to an ordinary furuncle."[3] Such being the case, the surgeon is called upon only in the event of suppuration. You will pardon my digression at this point with the view of demonstrating the unreliability of the diagnosis and the infrequency of primary inflammations and abscesses in the cellular tissue.

Martin[4] says: "In cases of parametritis, which are not very extensive, we see localized over them a peritonitis, usually simultaneous." Again, "The masses effused lie as thick layers on the peritoneum, or occasion firm adhesions between the ligaments and the adjacent coils of intestine, and form the means of the intimate adhesion of both with each other." Bandl[5] confirms the above. H. C. Coe,[6] in his paper on "The Exaggerated Importance of

[1] Thomas and Mundé, page 465.
[2] Ibid., p. 474.
[3] Ibid., page 465.
[4] Cushing's Translation, 1st edit., page 413.
[5] Cyclopedia Obst. and Gynecol., vol. xii. page 118.
[6] N. Y. Med. Journal, May 15, 1886.

Minor Pelvic Inflammations," writes: "Of half a dozen fatal cases of hystero-trachelorrhaphy and incision of the cervix, in which I have enjoyed the rare opportunity of studying carefully the sequences, in every instance the cause of death was acute diffuse peritonitis. The inflammation could be traced straight up from the wound along the mucous membrane of the uterus as an endometritis, along the tubes as pyosalpinx, and then to the peritoneal cavity. In none of these cases was there any evidence of acute cellulitis, although old cicatrices were not wanting." Polk, quoted by Maury,[1] adds his testimony: "In a large number of post-mortem examinations made in the dead-house of Bellevue Hospital it is the rarest thing to find pelvic cellulitis, unless the cellulitis be clearly secondary to a previous inflammation of the pelvic peritoneum."

It seems incomprehensible, except on the theory expressed in the beginning of this paper, considering the undisputed pathological facts as above quoted—facts confirmed by abdominal sections now reaching into the thousands—that our learned authors should, in the same breath in which they concede the mild character of this furunculoid disease, and proclaim that[2] "sterility, amenorrhea, dysmenorrhea, menorrhagia, tubal dropsy and displacement, seldom remain to attest the *apparent gravity* (italics mine) of the original disease"—should, I repeat, pronounce these very diseases and conditions of the pelvic viscera as complications[3]—a case of tail wagging the dog!

These teachings are disseminated in all modern text-books, cyclopedias, and reference books; they but vary in degree. I have found but one exception. After a careful, unbiased study of the difference between pelvic peritonitis and pelvic cellulitis as enunciated by modern authors, comparing *seriatim* the etiology, pathology, symptoms, course, differential diagnosis, and treatment, I am ready to believe that one chapter was written with the object of controverting the other; that the ordinary student must be confused, bewildered, overawed by the voluminousness of the literature, and the profound erudition of the writers; that the poor dazed mortal must realize the inevitable collapse consequent upon his coping with

[1] American System of Obstetrics and Gynecology, page 700.
[2] Thomas and Mundé, page 474.
[3] Ibid., page 469.

the intricacies of the subject, and that to save him from self-destruction there remains but one radical remedy — to piously expunge the whole chapter on pelvic cellulitis and substitute a single page in its stead.

To attempt to unravel the labyrinth of assertions and denials—contradictions without end—would lead us too far from our subject. A few specimen bricks on differential diagnosis will serve the purpose.

"Fixation of the uterus (in *pelvic peritonitis*) is absolute—a degree not attained in uncomplicated pelvic cellulitis." (R. B. Maury, *Amer. Syst. Gynecol.*, page 696.)

"We are of different opinion, having usually found the uterus absolutely immovable when incased in pelvic cellular exudations." (Thomas, page 473.)

"The uterus (in *pelvic peritonitis*) is always more or less interfered with in its mobility, and in severe cases it is absolutely fixed." (Thomas, page 484.)

"And we may be certain that, as a rule, where pain has been absent from the beginning, there has been no involvement of the peritoneum. Fritsch attaches great value for diagnosis to the painless origin of these swellings." (Maury, *op. cit.*, page 716.)

"I might adduce cases of gonorrheal ovaritis, commencing in healthy girls and ending in the fusion of all the parts in the pelvis into a solid immovable mass, without the patient losing a cheerful and even gay visage, or making any great complaint of pain, unless interrogated closely, and then alleging the chief suffering to be from irritable bladder." (Duncan, quoted by Thomas, page 484.)

Thomas's indorsement follows: "We ourselves have examined many women, married and unmarried, parous and nulliparous, in whom a rigid vaginal vault, immovable uterus, and adherent ovaries and tubes unquestionably denoted the previous occurrence of pelvic peritonitis, but who absolutely denied any knowledge of such an illness or of ever having spent even a day in bed."

"The extension of the tumor upward out of the true pelvis, is much more frequently seen in cellulitis following labor, and it is a physical sign characteristic of cellulitis as compared with pelvic peritonitis." (Skene, *Diseases of Women*, page 562.)

"The locality of the exudate is probably the most important sign

in the differential diagnosis." (W. W. Jaggard, *Reference Handbook*, vol. v. p. 541.)

"For the differential diagnosis of parametritis from other affections, the history of the case is of great significance; moreover, the determination whether the space of Douglas is free and the ovaries can be palpated." (A. Martin, translated by Cushing, page 419.)

"The most frequent seat of these accumulations (intra-peritoneal exudates) is Douglas's *cul-de-sac*. They are not always situated in the median line, but may be formed at the sides of the uterus, extending through the inlet of the pelvis to one or the other iliac fossa. The formation of such encysted exudations is not of frequent occurrence, and if they are situated near the uterus it is difficult to decide whether they are intra- or extra-peritoneal; but that such intra-peritoneal accumulations may occur, is well proved by post-mortem findings." (Bandl, *Cyclop. Gynecol.*, vol. xii. p. 121.)

"DIFFERENTIAL DIAGNOSIS.

"Pelvic Peritonitis.	*"Pelvic Cellulitis.*
"1. Pain very severe	"1. Pain not so severe.
"2. Patient's legs drawn up on both sides.	"2. Usually, only one leg drawn up.
"3. Firm, flat effusion not bulging into fornices and round the uterus. Symmetrical bulging of serous effusion behind uterus. Cervix (vaginal portion) is of normal length.	"3. Firm effusion, bulging usually into fornix of one side. Thus cervix (vaginal portion) apparently shortened on one side.
"4. Does not spread along round ligament or into iliac fossa, but may affect all peritoneum.	"4. Exudation or pus spreads in definite directions, and is usually localized.
"5. Uterus displaced to front or unaltered in position.	"5. Uterus usually displaced to one side.
"6. Vomiting more frequent.	"6. Vomiting less frequent.

"It is often very difficult to differentiate these; and therefore, in some cases the diagnosis must be pelvic inflammation, probably cellulitic, or peritonitic, as the case may be." (Hart and Barbour, edit. 1883, vol. i. p. 173.)

The last paragraph is the postern-gate by which all the above quoted authorities manage to escape. The following case is an exponent of the unreliability of such differentiation:

CASE I.—L. P., aged twenty-five years, single, dressmaker, sent by Dr. W. O. Jenks, Nottingham, Ohio, July 4, 1892; spare build, fair

complexion, anemic, much emaciated; menstruation irregular, three to six weeks, lasting two to three days, attended by considerable pain in sides. Has had frequent sick spells; subject to pleuritic attacks. Six months ago began to suffer scalding on micturition, and sharp pains across hypogastrium lasting two to three minutes. Pains sometimes recur daily, sometimes not felt for a week. Pain gradually grew worse. Ten weeks ago was suddenly seized with severe pain in left groin, attended with vomiting for several days, and has continued to suffer in that side since. Pain extends upward and outward. During these ten weeks the temp. has varied from 99.6° to 102°. Recently has had considerable pain on defecation, and it is claimed that once in two or three weeks there was a discharge of about half a teaspoonful of muco-pus from the rectum.

The abdomen was tender from the left anterior superior spine of the ilium to the symphysis pubis. Induration to be distinctly felt in iliac fossa of same side. Left extremity more or less flexed; extension causing discomfort or actual pain. On vaginal examination, the uterus was immovably fixed; the cervix large, pushed back into Douglas's space; fundus not distinct; space between uterus and left pelvic wall tender, flattened, but not prominent or fluctuating. Vaginal entrance and vagina relaxed, capable of admitting two fingers with ease; no discharge or irritation at the meatus.

Though the symptoms were typical of so-called pelvic abscess, I suspected gonorrheal infection from the history and the lax vagina (she claimed she had never been examined previous to the Doctor's first attendance when he found the vagina as described). Abdominal section was made July 5th, in the presence of Dr. Jenks, house staff, and a number of students. Omental adhesions to pelvic contents; the latter thoroughly matted together. The case proved to be one of double pus tubes and left ovarian abscess, the size of a large orange; abscess wall, intestines, and broad ligament firmly glued together, rendering the removal difficult and tedious. The tumor broke, before it had been quite enucleated, and the patient died septic on the fourth day—no autopsy.

In those cases of violent septic infection, whether due to parturition or unclean surgical operations, in which the cellular tissue is one of the avenues along which the bacteria invade the peritoneum, the resultant cellulitis plays only a minor part in the septic process. But, in event of less virulence of the poison, its advance may be stayed within the broad ligament, where it usually results in abscess

formation. Stripped of all verbiage, this condition is pelvic cellulitis proper, on a par with inflammatory or suppurative processes in other cellular tissues; as, for instance, in the neck under the deep fascia, in the abdominal wall, in the neighborhood of joints, beneath the periosteum, about the rectum, in the orbit of the eye, about the kidneys, or wherever cellular tissue is found. Of pelvic cellulitis, as here interpreted, Tait[1] gives this curt description: "The latter disease (pelvic cellulitis) is rare, and occurs in two forms, depending for their characters on the situation of the disease. If it is situated in the inner half of the broad ligament, it is to be recognized as a mass lying close to the uterus and in front of it, between uterus and bladder, and into the bladder it generally bursts. If it exists in the outer half of the broad ligament, it is to be recognized as an ill-defined mass lying on the brim of the pelvis, and fading off on that ridge. In this position it bursts over the brim of the pelvis, and constitutes the familiar 'pelvic abscess,' whose sinuses go on for years."

Unless we can obtain an accurate history and can palpate the ovaries, as suggested by Martin, there is no single symptom nor set of symptoms by which we can differentiate and positively diagnose pelvic cellulitis as independent of intra-peritoneal disease. If the diagnosis is positive, the abscess can be safely opened wherever it presents, whether that be in the vagina or above Poupart's ligament. Abdominal section in such case is unnecessary. The possibility of simultaneous or secondary infection of the appendages must not, however, be lost sight of, as illustrated in the following case:

Case II.—Mrs. K., aged twenty-eight years; married seven years; mother of five children. Dr. A. J. Cook writes: "About three weeks ago I was called to see her; she had passed a two and one-half to three months' fetus. I removed a putrid placenta, curetted and washed out uterus, but sepsis had already commenced. There is, in my opinion, an abscess in the right ovarian region somewhere, which it seems to me had better be surgically removed." She was brought to the hospital, and was kept under observation for five days, during which the temperature ranged from 99.5° to 102.5°; pulse 90 to 108. A tumor corresponding to the right broad ligament, reaching to the right anterior superior spine of ilium, could be felt on bimanual touch. Vaginal vault unyielding, hard; uterus fixed; low down in right fornix a sen-

[1] Diseases of Women and Abdominal Surgery, page 132.

sitive tumor, size of walnut. Externally a tumor in the right iliac fossa; abdominal wall apparently attached. On January 23, 1892, in presence of Drs. Cook, Searl, Crile, and four students, made incision two inches above and parallel to Poupart's ligament, expecting to find adhesion of peritoneum to abscess wall. There was no adhesion, the incision entering the abdominal cavity. The intestines were superimposed and adherent over the pelvic cavity and broad ligament. In the latter, which was thickened but not doughy, could be felt bunches of swollen, non-fluctuating glands, extending, rosary-like, from side of uterus to side of pelvis. Not finding it advisable to continue in this direction, the lateral incision was closed, and a second incision made in the median line. Through this, detached right ovary, which had been adherent low down to broad ligament. The union between ovary and the latter was so firm that a part of the infiltrated ligament was found attached to ovary. From this torn end a slight oozing of thin pus was noticed while the pedicle was being tied. The ovary was thrice the normal size, cystic, in its centre a pus cavity of small bean size. Tube patulous, congested, much enlarged, no pus. Pelvic cavity thoroughly irrigated, and drainage used. Patient died on third day, of sepsis. No autopsy.

It did not strike me at the time that there must also be oozing of pus from the torn end of broad ligament left in pelvis. I believe that gauze packing about this point might have saved my patient. I had been enticed to make the lateral incision, because of a successful case elsewhere reported.[1]

My experience in the pathology of the cases here reported (the only pus cases the writer has hitherto lost) has induced me to discard the lateral incision. The same objection can be made against Hegar's method of lateral incision down to the peritoneum, and then pushing the latter away, dissecting into the pelvic cavity behind the pubic bone until pus is reached. In doubtful cases I would strongly endorse the practice followed by Wylie, and more recently by C. A. L. Reed[2] of first making an exploratory section, and then, if the pelvic contents be normal, to open directly over the tumor under guidance of a finger in the abdomen; if diseased, they can be treated according to the condition found.

Of more importance than the method of incision, has been the

[1] Cleveland Medical Gazette, Sept. 1890.

[2] "Surgical Management of Pelvic Abscess." TRANS. AMER. ASSOC. OBSTET. AND GYNECOL., vol. iv. p., 234.

information gleaned of the presence of simultaneous suppuration in the ovary and broad ligament. In the latter, the condition was one of lymphadenitis, in which the glands had not yet suppurated. If the patient had survived, the glands might have degenerated, leading to a final discharge of pus and cheesy material by means of one or more openings somewhere about the pelvis—sinuses. There is no reason why sinuses caused by cellulitis should not heal within a reasonable period when properly drained, as they are known to do in other parts of the body. But when sinuses have their source in heterogeneous tissues or organs, be this a carious tooth, a diseased bone, a tuberculous gland, a foreign body, or a diseased tube or ovary, they are not prone to heal without removal of the offending cause. Remove the cause and their closure is often marvellously rapid.

I feel that I owe an apology to the Fellows of this Society for discussing so hackneyed a subject at such length. To have condensed it, would have courted failure of my purpose to obtain, through this representative body, a hearing at the hands of a patient, long-suffering, stultified audience—the general practitioner. A teacher myself, without malice or bias, willing to expose and criticise my own failures, I have endeavored to prove, taking the proof from text-books and larger publications, that:

1. By adducing illogical analogies and by ignoring recent authenticated, incontrovertible pathological observations, pelvic cellulitis has been accorded a rank hugely disproportionate to its modest contemporaries in other parts of the body.

2. In order to maintain this high-handed usurpation, page upon page of self-contradiction and polemic have been thrust upon students and general practitioners, causing endless confusion and bewilderment.

3. Except when undergoing suppuration, pelvic cellulitis is a harmless disease—a bugbear, frightening by its *apparent gravity*.

4. A positive diagnosis can seldom be made; when it is made, the abscess can be opened wherever it points.

5. Whenever there is a doubt as to the character of the abscess, exploratory abdominal median section is the best mode of treatment.

6. Sinuses in and about the pelvis must be treated on the same surgical principles as sinuses elsewhere in the body—properly drained, in simple cellulitis; radically operated, for removal of foreign body or other cause.

ON THE MANAGEMENT OF THE THIRD STAGE OF LABOR.

By F. BLUME, M.D.,
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Since the year 1883, when Ahlfeld[1] published his investigations on the third stage of labor, a number of articles on this subject have appeared, and, with the improvement of our physiological knowledge the doctrine of the afterbirth period has been essentially modified. Especially the practical side of the question, the management of the placental stage of labor, has occupied a prominent place in the discussions and engaged the interest of the profession. It has been proven by various observers that the efforts of Nature suffice to detach and expel the placenta from the contractile uterine body, but that assistance is needed in most of the cases to remove it from the lower uterine segment and the vagina. An active exchange of opinions on Credé's method then ensued, and the view is gaining ground that its application is to be restricted to pathological cases, and that only the last part of the procedure, the pressing down of the fundus uteri, is admissible in normal labor.

The question regarding the time when interference is indicated is still under discussion. The chief representatives of this new doctrine, Ahlfeld and Schroeder, do not agree on this question.

Ahlfeld, basing on the principle that labor is a physiological act, recommends to leave the delivery of the secundines as far as possible to the powers of Nature. He teaches not to interfere for one and one-half to two hours after the birth of the child, unless hemorrhage or some other accident demand interference. This is the expectant method.

Schroeder[2], on the other hand, is not in favor of this expectant

[1] Ahlfeld: Berichte, und Arbeiten aus Giessen, 1883.
[2] Schroeder: Der schwangere und kreissende Uterus, 1886.

plan. He advises waiting until the placenta is separated and expelled through the contraction-ring by the uterine forces, and removing it from the lower genital tract without delay by external pressure. This is the expectant-active method.

Strange as it may seem, Schroeder's expectant-active plan has been erroneously looked upon by various authors as a simple modification of Credé's method. They admit that no manipulations are required to separate and expel the placenta through the contraction-ring, yet they call the simple removal of the detached afterbirth Credé's method. It is needless to say that such incorrect statements have not improved our knowledge. On the contrary, they are misleading and add to the uncertainty and confusion which have surrounded Credé's method ever since it has been given to the profession.

It is not my purpose to again discuss the physiology of the placental stage of labor as taught by Ahlfeld and Schroeder, by Stratz[1] and Cohn,[2] Schroeder's pupils, for I have done so extensively in the spring of 1889.[3] I shall therefore confine my remarks on the physiology to those important points the knowledge of which I think absolutely necessary to form an opinion on the proper conduct of the afterbirth period. In order to be better understood I again divide the third stage of labor into three acts:

1. The separation of the placenta.
2. Its expulsion from the uterine body through the contraction-ring.
3. Its expulsion from the lower uterine segment, cervix, and vagina.

When not influenced by external manipulations the fundus uteri immediately after the expulsion of the child is to be felt in most cases on a level with or about an inch below the umbilicus. It is forced downward from the margin of the ribs to the pelvic inlet by its own weight and by the effect of the abdominal pressure; the flaccid lower uterine segment and the cervix, after being emptied, are not capable of holding the uterine body in its position.

[1] Stratz, vide Schroeder: Der schwangere und kreissende Uterus, 1886.

[2] Cohn: Zur Physiology und Dietetik der Nachgeburt's Periode. Zeitschrift für Geburtshülfe und Gynäkologie, 1886, vol. xii. p. 381.

[3] Blume: A Contribution to the Physiology and Management of the Third Stage of Labor. Pittsburg Medical Review, 1889, p. 49.

1. THE SEPARATION OF THE PLACENTA.

A dislocation of the placenta at its placental site and a loosening within the decidua serotina occur during labor in consequence of the uterine contractions, which, from the beginning create a point of least resistance in the placenta, at which, later, the complete detachment takes place (Carl Ruge[1]). The placenta accommodates itself to the contractions of the area of its insertion; becomes thicker; its fetal aspect shows rolls and wrinkles, but in spite of the strongest contractions it is not separated, because it is pressed against and kept at the point of attachment with the same force with which the uterus contracts itself. After the birth of the child the intra-uterine pressure considerably diminishes; the first contraction, in which now the placental site equally participates, separates, as a rule, the centre of the placenta (Schroeder-Stratz).

When the contraction ceases the uterus relaxes, the separated part of the placenta bulges out into the uterine cavity, and the retro-placental space fills with blood by aspiration—the retro-placental hematoma (Ahlfeld). The subsequent contractions accomplish the separation.

2. THE EXPULSION OF THE PLACENTA THROUGH THE CONTRACTION-RING.

The placenta, being separated, is expelled through the contraction-ring into the lower uterine segment, cervix, and vagina, and by its descent the still adherent membranes are gently drawn down, and thus wholly or in part detached. It leaves the uterine cavity with the fetal side foremost, the membranes inverted, in the manner described by Schultze. In about 20 per cent. of the cases it presents by its inferior margin—Duncan's mode of separation. Far less frequent is a mixed mode of detachment. The placenta, for instance, may present by its lower border, after Duncan, the membranes resist, and it may be expelled with the fetal side foremost and with but partly inverted membranes, *i. e.*, not quite in the manner described by Schultze, and *vice versa*.

[1] Carl Ruge: Die Eihüllen des in der Geburt befindlichen Uterus. In Schroeder's Der schwangere und kreissende Uterus, 1886.

If the placenta is detached and expelled after Schultze no blood appears externally; it is retained by the inverted membranes. The retro-placental hematoma is found after the delivery of the secundines in the pouch formed by the uterine side of the placenta and the membranes.

In cases of Duncan's mode the retro-placental hematoma is pressed between the uterine wall and the membranes; the latter burst and the blood flows out before the birth of the secundines.

The descent of the placenta through the contraction-ring is, in the vast majority of cases, terminated fifteen minutes after the birth of the child, and can be observed through the abdominal walls. The fundus uteri rises above the umbilicus and stands, after the expulsion of the placenta into the lower segment, higher, on an average about two and one-half inches, than before. The ascension of the fundus occurs gradually; it rises with every contraction; the uterine body becomes smaller. The lower uterine segment, being collapsed after the birth of the child, becomes distended by the descending placenta and pushes the uterine body upward.

While the separation of the placenta and its expulsion into the lower uterine segment, with but rare exceptions, occur spontaneously, the complete removal of the afterbirth if left to Nature alone is, under the usual mode of accouchement (the woman in the dorsal or lateral decubitus), delayed, often for a considerable length of time. The necessity of interference, therefore, is almost universally admitted.

There is difference of opinion, however, as to the forces which effect the detachment of the afterbirth and as to the manner in which it leaves the uterine cavity.

Notwithstanding that it has been conclusively proven that Schultze's mode of separation is far more frequent and favorable than Duncan's, some authors still adhere to Duncan's doctrine. His view, that inversion of the ovum is produced by traction upon the cord, is, as they believe, strengthened by the observations of Fehling[1] and Zinsstag,[2] who assert that as soon as the child emerges from the vulva the cord is stretched. By this pulling on the cord the detachment of the placenta is influenced, the centre becomes

[1] Fehling: Transactions of German Society for Gynecology, May, 1888. Archiv für Gynakologie, vol. xxxii. p. 452.

[2] Zinsstag: Archiv für Gynäkologie, 1889, vol. xxxiv. p. 255.

loosened, and the ovum inverted. To prevent this they secured the cord with two forceps, divided it before the child was fully expelled, and thus found the mechanism of Duncan more frequent than that of Schultze in a proportion of 12 : 1.

It is evident that this theory is applicable only to a very limited number of cases. But even granting these assertions to be correct, what influence could they have upon the profession at large? what practical value as regards the management of the third stage of labor? Are we to cut the cord between ligatures before the child is fully born with the view to artificially produce the less favorable mode of separation?

Cohn[1] observed among 500 deliveries, 368 times Schultze's and 132 times Duncan's mode, the uterus in all of these cases not having been touched before the expulsion of the placenta into the lower uterine segment. Dohrn[2] and Champneys[3] found Duncan's mode in but 20 per cent., and this accords with my own observations. Beaucamp,[4] who quite recently investigated this subject, saw, among 444 deliveries, the placenta detached after Schultze 373 times, after Duncan 71 times, a proportion of 84—16 per cent., or 5.25 Schultze's to 1 Duncan's mode. This proportion rose in favor of Schultze's mechanism about 4 per cent. in 225 of these cases where the placenta had been expressed two hours after the birth of the child. He met here 197 times with Schultze's and but 28 times with Duncan's mode, a proportion of 87.6—12.4 per cent.

According to his observations, which only confirm well-known facts, Beaucamp concludes that the debate as to which mode of separation is the normal one must be considered as decided in favor of Schultze.

3. THE EXPULSION OF THE PLACENTA FROM THE LOWER UTERINE SEGMENT, CERVIX, AND VAGINA.

With the expulsion of the placenta through the contraction-ring labor is practically terminated as far as the contractile uterine

[1] Cohn: loc. cit.

[2] Dohrn: Transactions of the German Society for Gynecology, May, 1888. Archiv für Gynäkologie, vol. xxxii. p. 451.

[3] Champneys: Transactions of the Obstetrical Society of London, April, 1887; American Journal of Obstetrics, vol. xx. p. 661.

[4] Beaucamp: Archiv für Gynäkologie, 1892, vol. xlii. p. 103.

body is concerned. The afterbirth now lies loosely in the lower genital tract, and is but in a small number of cases driven through the vulva spontaneously. The contractile uterine body has no influence upon this last act of the placental stage of labor. The expelling forces are: the weight of the placenta itself, the elasticity of the vagina, and the abdominal pressure. Their inefficiency, acknowledged by all observers, demands interference in most cases, and thus the question arises, At what time is interference justifiable?

Ahlfeld's assertions, the advantages which he claims for the expectant method—waiting one and one-half to two hours—have not been confirmed by other observers. Von Campe, Cohn, and especially Beaucamp, who conducted five hundred deliveries according to Ahlfeld's rules, arrive at the conclusion that this method does not deserve recommendation, as it is applicable only to a limited number of cases, and neither prevents hemorrhage nor retention of the membranes. Indeed, compared with the results of the expectant-active plan; the loss of blood in Beaucamp's cases is more than surprising.

It cannot be denied that in some instances, after the placenta has been expelled into the lower segment, the membranes may not be completely detached, may partly remain in the uterine cavity, and thus give rise to hemorrhage. These cases, in my opinion, are the strongest argument against the expectant method; they certainly require prompt interference. Unfortunately, however, with our present means we are unable to determine whether the membranes are completely separated and expelled from the uterine body or not. The rising of the fundus uteri above the umbilicus is only the certain symptom of the descent of the placenta, nothing more; it leaves us in doubt as to the membranes. The accoucheur, therefore, when following the expectant method, remains in an uncertainty until hemorrhage proves some irregularity of the uterine action, which in all probability could have been prevented by removing the after-birth as soon as the ascension of the fundus indicated its expulsion from the uterine cavity.

It undoubtedly is not in the interest of our patients to delay the delivery of the placenta after it is expelled through the contraction-ring; the expectant method should, therefore, be abandoned.

The separation of the placenta and its expulsion into the lower uterine segment is terminated by the efforts of Nature about fifteen

minutes after the birth of the child in the vast majority of cases. Beaucamp states that in no instance did he observe a rising of the uterus after the first half-hour. In a very limited number of cases the abdominal pressure can now sufficiently be brought into action, the afterbirth is expelled, and labor is quickly ended, some times far less than fifteen minutes being required for the placental period.

Those who have ever observed through the abdominal walls the effect of the abdominal pressure upon the uterus will confirm that the contracted uterine body is pressed downward, the fundus descending several inches, and that thus the placenta is driven through the vulva. If Nature were thus capable of terminating the placental stage of labor within about fifteen minutes in every instance nobody would object to it. There would be no discussion on the question as to what time it is justifiable to do what, unfortunately, Nature can do but in exceptional cases, for such a question would never have come up.

Cohn's advice, to gently press the fundus uteri down into the pelvic inlet, substitutes the hand for the abdominal pressure and imitates Nature as closely as anything can possibly do. "The contracted uterine body, he says, acts like the piston of a syringe which forces all loose material before it. This method, also employed by Ahlfeld, removes the placenta with absolute certainty and great perfection."

If the membranes should still be partly adherent they can easily be removed by gently drawing them downward and backward without twisting them.

The difference between the expectant-active plan and the Credé method is so pronounced that it appears more than strange when some authors bring the name of Credé in connection even with the simple removal of the detached placenta from the lower birth-canal. Is it correct to call this Credé's method or a modification of it? Is it correct when Beaucamp,[1] after having stated that Ahlfeld and Cohn press the fundus downward without the aid of the thumb, to demonstrate that they do not compress it, says: "It does not depend much upon the manner in which the necessary pressure is effected, and, therefore, the old Credé procedure may as well remain

[1] Beaucamp: loc. cit.

in force—grasping the uterus with the full hand and pressing it downward"? Is this the old Credé procedure?

Credé's method consists of three maneuvers, as follows:

1. Friction over the uterus to incite or increase contractions.

2. Compression of the uterus at the height of a contraction, to detach and expel the placenta from the uterine cavity. Credé recommends the third or fourth contraction, which occurs about five minutes after the birth of the child, as the most advantageous period. In his last contribution[1] on this subject he modifies this statement. The time, he says, which expires before the third or fourth contraction differs, but rarely exceeds fifteen or, at most, thirty minutes. An inexperienced operator is advised to wait for the eighth or tenth contraction.

3. Pressing down the uterus into the pelvic inlet to drive the placenta through the vulva.

It is evident, and stated by Credé himself, that the most essential feature of his method is the application of external manipulations, the great advantage of which is the diminution of the grave danger of septic infection. It cannot be denied, however, that his rules are in contradiction to the physiology of the third stage of labor of to-day, and that they are not applicable to normal cases.

If statistics prove anything, it is demonstrated beyond doubt that the uterus needs no assistance at the commencement of the after-birth period. Friction over the uterus, to incite or increase contractions, with the intention of preventing hemorrhage and of hastening the separation of the placenta, is contra-indicated at this period. The uterus remains inactive for several minutes; but in spite of this uterine inactivity the fear of hemorrhage, so strongly impressed upon the obstetrician, is unfounded at this period. "Although the uterus is relaxed immediately post-partum, it does not bleed yet, because no contraction has as yet detached the placenta. The uterus is still exhausted and, for a time, not capable of putting forth further efforts. A few minutes of rest suffice; the uterus again contracts and terminates its last functions—the separation and expulsion of the afterbirth without massage, ergotine, etc." (Cohn).

[1] Credé: Die Behandlung der Nachgeburt bei regelmässigen Geburten. Archiv für Gynäkologie, 1888, vol. xxxii. p. 96.

As stated above, the placenta has left the uterine cavity within the first fifteen minutes after the birth of the child in most cases. In many instances I observed no further rise of the fundus after the first ten minutes; hence, the delivery of the secundines by the Credé method at this time or later is impossible. It is but an erroneous view of the conditions, to recommend its application fifteen to thirty minutes post-partum, for there is no placenta in the uterine cavity at this time. It lies loosely below the contraction-ring, and friction over the fundus and compression of the uterine body have no influence upon it. All that is left to be done is to press the fundus downward into the pelvic inlet to drive the placenta through the vulva, a maneuver which certainly should not be called Credé's procedure, for it is only the last part of it.

It is well known that Credé's method has never been popular among the profession at large. In contradiction to text-books, traction on the cord and the introduction of the hand have been, and still are, very common methods of delivering the afterbirth in private practice, and have even of late found prominent advocates. The reason for this is obvious; it lies in the Credé method itself and in the unintelligible description given by most authors.

One would think that under these circumstances the expectant-active plan should have been favorably considered, the more so, as, to my knowledge, no argument against it has been presented which could bear criticism; but such is not the case. Its importance is far from being fully recognized, though those who recommend to employ Credé's method fifteen minutes post-partum or later do, in fact, recommend the expectant-active plan, plus friction over and compression of the uterus, both of which manipulations are obviously unnecessary and unjustifiable at this period.

While the delivery of the secundines by Credé's procedure is impossible after an interval of fifteen to thirty minutes post-partum, the early employment of this method is contra-indicated in normal cases. Even its most ardent advocates admit, what everybody knows is true, that too much haste in resorting to it favors a tearing and retention of the membranes and the tendency to hemorrhage. It is a wise plan not to interfere before at least fifteen minutes have elapsed, for those who wait do not disturb the natural process of both the separation of the placenta and its expulsion from the uterine body. They do not practise, however, the Credé procedure,

but the expectant-active method, hence the satisfactory results and the rare occurrence of complications.

The advantages of the expectant-active plan are plain. It is based upon and in harmony with the physiology of the third stage of labor. It leaves to the efforts of Nature what they, almost without exception, most promptly and successfully accomplish—the detachment of the placenta and its expulsion from the uterine body. It advises interference at a period when the inefficiency of Nature requires assistance, and it renders this assistance—the expulsion of the placenta from the lower uterine segment and the vagina—in a manner which closely imitates Nature and which in no way is injurious or inconvenient to the woman. It is a safe and most simple procedure, and can be practised without difficulty even by midwives.

The expectant-active method, with its great advantages and very satisfactory results, deserves to be recommended as the most practical and best management of the afterbirth period in normal labor, while Credé's procedure is to be reserved for pathological cases. When hemorrhage ensues, or when the natural forces do not suffice to completely detach the placenta, as in some instances of Duncan's mechanism, when the upper border of the placenta remains adherent, Credé's method is indicated.

Careful observations in the lying-in chamber will convince even the most conservative man of the advantages of the expectant-active method. They will teach him that it is to his patients' and to his own interest to abandon old views, which, no matter how dear they may be to him, are untenable considered in the light of recent knowledge.

IN MEMORIAM.

BERNHARD BURNS, M.D.

By X. O. WERDER, M.D.,
PITTSBURG.

It becomes our painful duty at this meeting to announce the death of one of our Fellows, Dr. B. Burns, of Allegheny, Pa., which occurred at Mercy Hospital, Pittsburg, January 24, 1892.

Personally Dr. Burns was known to comparatively few members of our Association, as he attended but one meeting, its first, in Washington in 1888, at which he intended to become a member, but his application having been received too late, action on it had to be deferred until the following year; the paper, however, which he contributed was published in the first volume of the Transactions of this Association. Shortly after his election to fellowship the first symptoms of the obstinate disease to which he finally succumbed this year made their appearance and prevented him, to his very great regret, from taking more active part in the deliberations of this body.

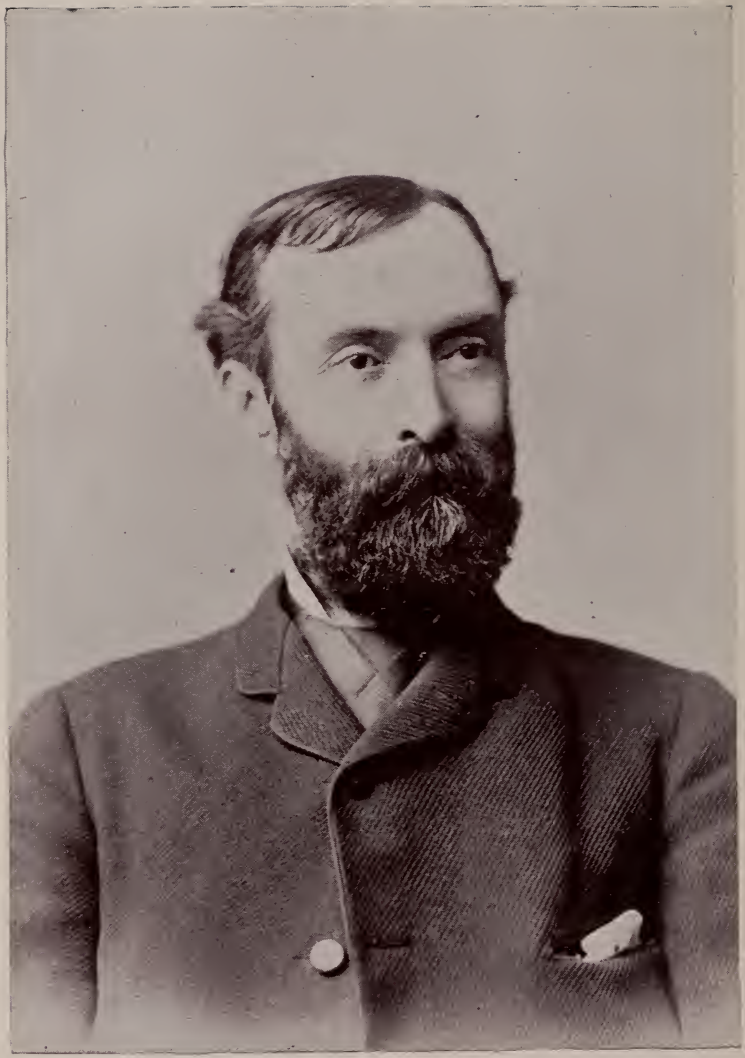
The death of Dr. Burns was sudden, but not unexpected. He had been a sufferer for nearly three years, incapacitated from active practice for almost two years. During this period he consulted native and foreign physicians, making two trips to Europe in the hope of getting relief; but the disease, a tumor at the base of the brain, made slow but constant progress, until about a year ago, when total blindness supervened. In this pitiable condition he sought refuge at Mercy Hospital, where he had begun his professional career as resident physician, achieved success and reputation as an enthusiastic and tireless worker in his department, and where he knew he would find friends, kind and true, in the good sisters and

in his co-laborers who had taken much pride in him. During this year of darkness no word of complaint ever escaped his lips; though aware of the hopelessness of his condition, he bore it patiently—almost cheerfully. Visitors always found him good-humored, entertaining, and animated, even up to his last day.

Dr. Burns was born January 24, 1854, being, therefore, just thirty-eight years of age on the day of his decease. He graduated at Jefferson Medical College in 1874; and, after serving a year at Mercy Hospital as resident physician, he began the practice of medicine in Glenfield, a suburb of Allegheny City. Early in his career as a medical practitioner he developed a taste for gynecology, in which field he soon attracted attention as a faithful and successful worker. In the year 1887 he made a trip to Europe, visiting the gynecological clinics of Hamburg, Berlin, Vienna, and Paris. At the latter place he was particularly interested in the work of Apostoli. On his return he located in Allegheny, and, in connection with Dr. Joseph N. Dickson, opened a gynecological department in Mercy Hospital, this being the first hospital in Western Pennsylvania with a special department for the treatment of the diseases of women. He soon became known as a careful student as well as a good and successful operator, and, no doubt, would have reached a high degree of fame had not his merciless malady destroyed his exceedingly bright prospects so early in his career.

He took an active interest in the local medical societies, contributing papers and frequently taking part in the discussions. At the time of his death he was a member of the Allegheny County Medical Society and Pittsburg Obstetrical Society, whose president he was during the year 1890. He published several monographs on subjects pertaining to his specialty, among which may be mentioned "New Operation for Lacerated Perineum," "Uterus Bicornis; Two-horned Uterus with Double Vagina," and "The Application of a New Perineum Operation."

Personally, Dr. Burns was a man of very pleasant, genial, and winning disposition, hence had numerous friends among his professional brethren who will deeply feel his loss.



Yours Very truly

Walter Reed M.D.

From *St. Louis Med. and Surg. Journal.*

WALTER COLES, M.D.

By GRATZ ASHE MOSES, M.D.,
ST. LOUIS.

Dr. Walter Coles was born in Goochland County, Virginia, February 25, 1839, and died August 9, 1892. He was prepared for college at the Edge Hill School, Princeton, N. J., and entered Hampden Sidney College in 1855. His medical education was commenced at the University of Virginia and completed at the University of New York, where he graduated in 1860. Being under age, his diploma was not granted until the following year, when he received an appointment in the Bellevue Hospital, remaining there until the secession of Virginia, when he returned to his home, and entering the Confederate Army served as surgeon until the close of the war.

From 1865 until 1871 he resided in Parkersburg, West Virginia, where he achieved an enviable position, but desiring a more extended field he removed to St. Louis, where his ability and attainments were soon recognized by the profession and public. His observation was accurate and his learning extended. His assiduous devotion to his work and successful practice won him many devoted friends and admirers.

He wrote frequently, and his papers were marked by thoroughness, perspicuity, and originality.

For two years he served as President of the St. Louis Obstetrical and Gynecological Society, and at the time of his death was President of the St. Louis Medical Society and Professor of Obstetrics in Beaumont Medical College.

Dr. Coles was twice married, and left four children surviving him.

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